U.S. Department of the Interior
Bureau of Land Management

Kremmling Field Office
P O Box 68
Kremmling, CO 80459

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-LLCON02000-2014-032-EA

PROJECT NAME: Bonanza Creek Energy Applications for Permit to Drill (APDs) NMU 11-12H & SMU 22-6H

LEGAL DESCRIPTION: T. 9 N., R. 79 W., Sec. 11 NWNE, 6th P.M.;
T. 9 N., R. 78 W., Sec. 22 SWSW, 6th P.M.;
Jackson County

CASEFILE/PROJECT NUMBER: NMU 11-12H: COC-028963, Unit COC-47650X
SMU 22-6H: COC-7979, Unit COC-47689X

APPLICANT: Bonanza Creek Energy Operating Company LLC (Bonanza)

Background/Introduction: The Federal mineral estate administered by the Bureau of Land Management (BLM) as part of its mineral leasing program provides minerals, including fossil fuels, for the benefit and use of the American public and encourages development of domestic oil and gas reserves to reduce dependence on foreign energy supplies. Mineral development is supported by the Mineral Leasing Act (1920 30 USC 181 et. seq.) and the Federal Land Policy and Management Act (FLPMA).

A Notice of Staking (NOS) was received, with on-site reviews of the proposed well sites occurring as soon as weather and schedules permitted. The NOS, on-site review, and Applications for Permit to Drill (APDs) were submitted as follows:

- NMU 11-12H NOS was received on November 12, 2013; on-site review occurred on April 25, 2014; APD was received on May 20, 2014.
- SMU 22-6H NOS was received on November 6, 2013; on-site review occurred on April 25, 2014; APD was received on May 22, 2014.

On-site reviews were attended by BLM Kremmling Field Office (KFO) staff specialists Bill Wyatt, Archeologist; Darren Long, Wildlife Biologist; Paula Belcher, Soils-Water-Air; and Kelly Hodgson-Elliott; Natural Resource Specialist. Also in attendance were: Pepper Canterbury- Colorado Parks and Wildlife; Dave Kubeczko- COGCC; Allen Jones, Bill Wright, Jim Foster, Dean Tinsley, Steve McPhersen, Nick Bosley, Jack Richard, Doyle Jenkins, Keith

Caplan, Gary Johnson, Steve Wolfe- Bonanza Creek Operating; Dave Voorhees- Contractor for Bonanza Creek Operating; Randy Miller, Rex Shaw- North Park Engineering; Andrea Gross- Upstream Petroleum Management, Inc. Access and road alignment, pad location, likelihood of cultural resource concerns and wildlife issues were discussed at the on-site meeting.

PURPOSE AND NEED FOR THE ACTION: The BLM received APDs for the NMU 11-12H and SMU 22-6H from Bonanza for well locations on federal surface estate to explore for and develop oil and gas reserves in the United States. Lease development was essentially guaranteed when the leases were issued [Mineral Leasing Act of 1920, 30 USC 181 et. seq., as amended, and the Federal Land Policy and Management Act (FLPMA)]. Federal leases are issued for an initial term of 10-years and are valid indefinitely as long as capability to produce in paying quantities is maintained, either on a leasehold basis or on a unit basis (if the lease is contained in an approved oil/gas unit).

The BLM is preparing the Environmental Assessment (EA) to address potential impacts associated with approval of Bonanza's APDs. If approved, it would further BLM's objective contained in the 1991 Oil and Gas Leasing and Development Environmental Impact Statement/Record of Decision (EIS/ROD) to: "Facilitate orderly, economic, and environmentally-sound exploration and development of oil and gas resources using balanced multiple-use management.

It is the intent of the applicant to exercise their lease rights to occupy as much of the lease surface as is reasonable for the exploration and extraction of oil and gas.

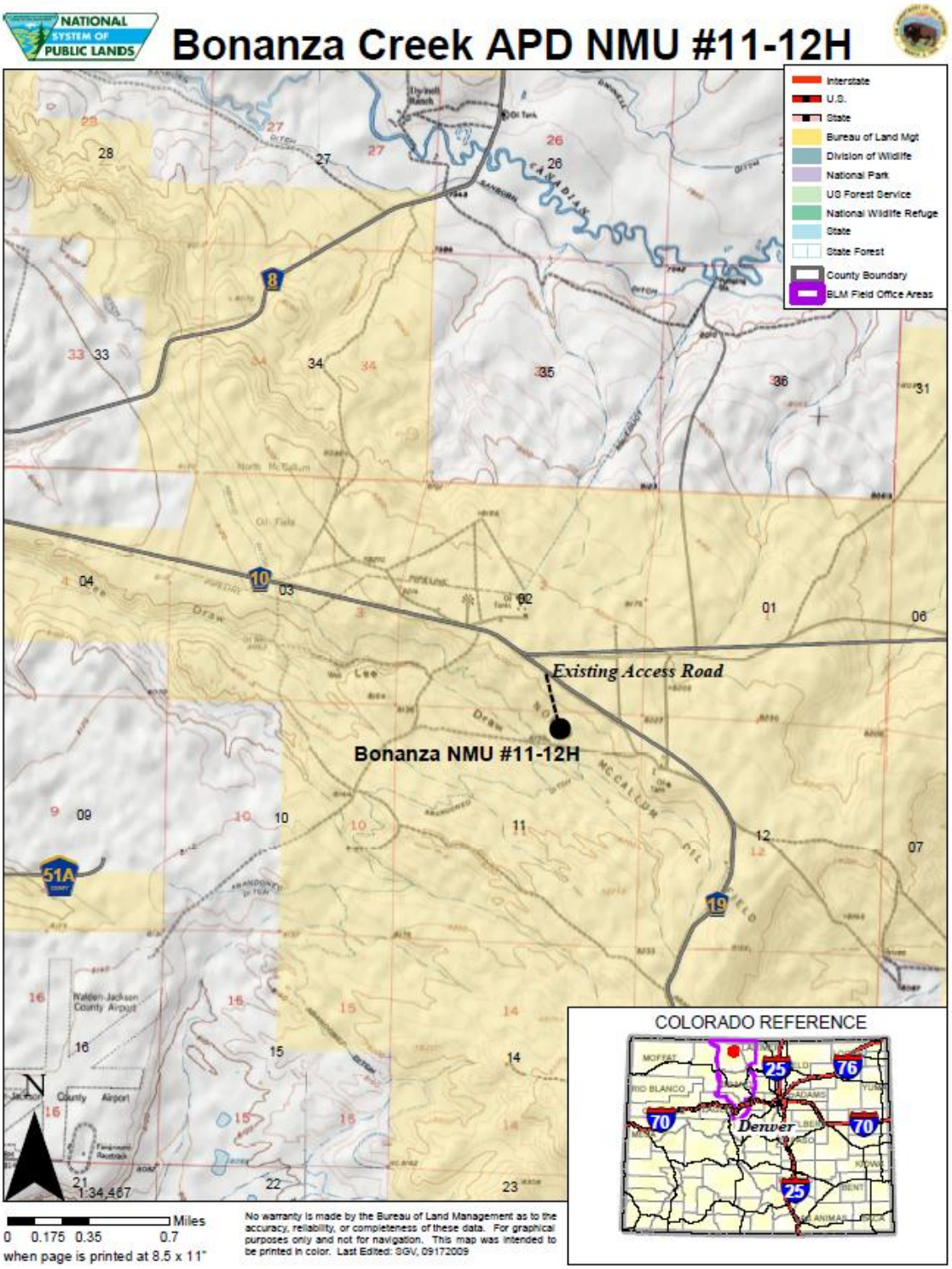
DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

PROPOSED ACTION: Bonanza Creek Energy Operating Company LLC (Bonanza) proposes to drill two new horizontal oil/gas wells in Jackson County, Colorado in August 2014. The proposed well locations would be as follows;

- **NMU 11-12H** well would be on BLM-administered surface and mineral estate, located in the existing North McCallum Unit in T. 9 N., R. 79 W., Sec. 11 NWNE.

- **SMU 22-6H** well would be on BLM-administered surface and mineral estate, located in the existing South McCallum Unit in T. 9 N., R. 78 W., Sec. 22 SWSW.

See maps below.


Bonanza Creek APD NMU #11-12H
NATIONAL SYSTEM OF PUBLIC LANDS
Interstate
U.S.
State
Bureau of Land Mgt
Division of Wildlife
National Park
US Forest Service
National Wildlife Refuge
State
State Forest
County Boundary
BLM Field Office Areas
Existing Access Road
Bonanza NMU #11-12H
COLORADO REFERENCE
Denver
1:34,467
Miles
0 0.175 0.35 0.7
when page is printed at 8.5 x 11"
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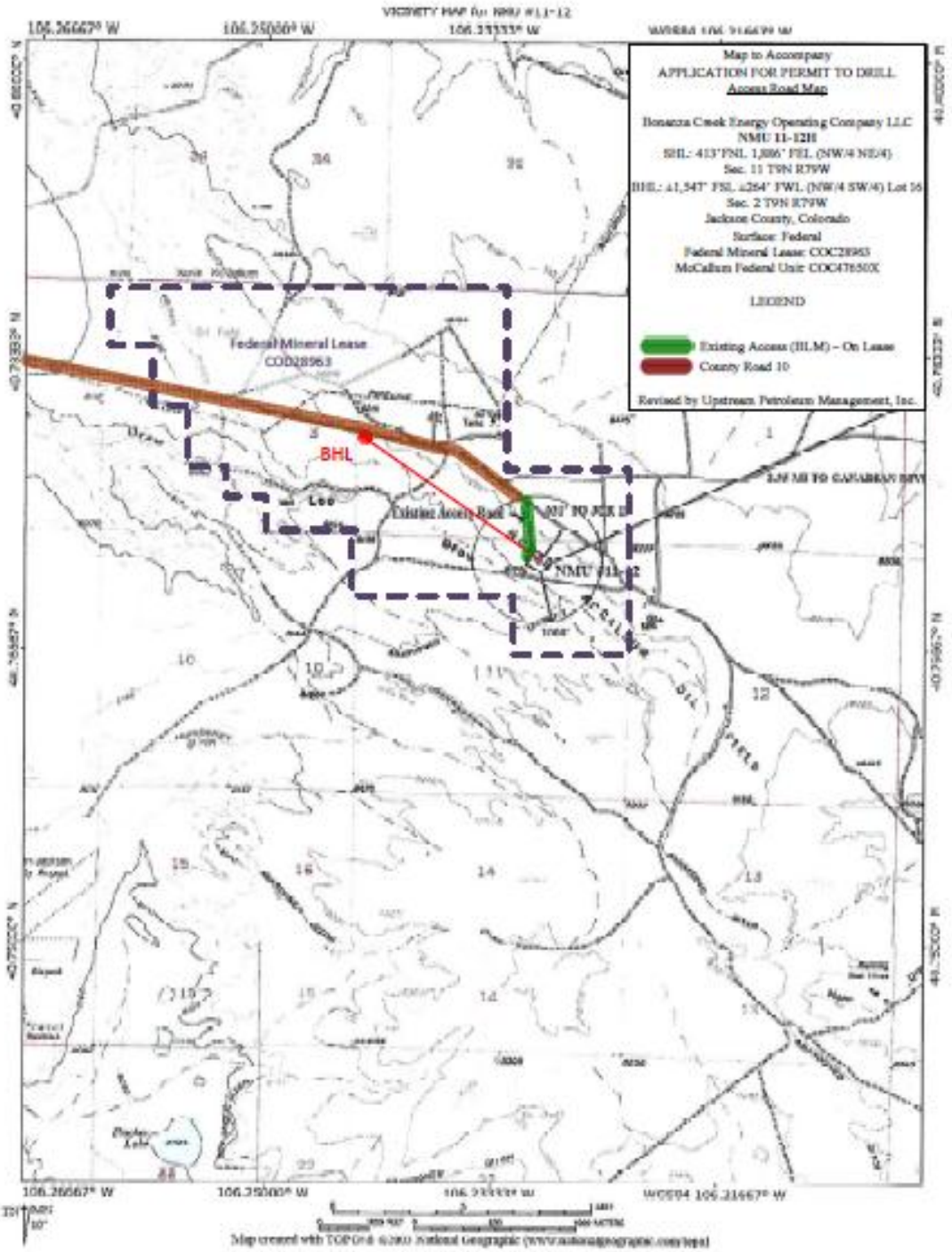
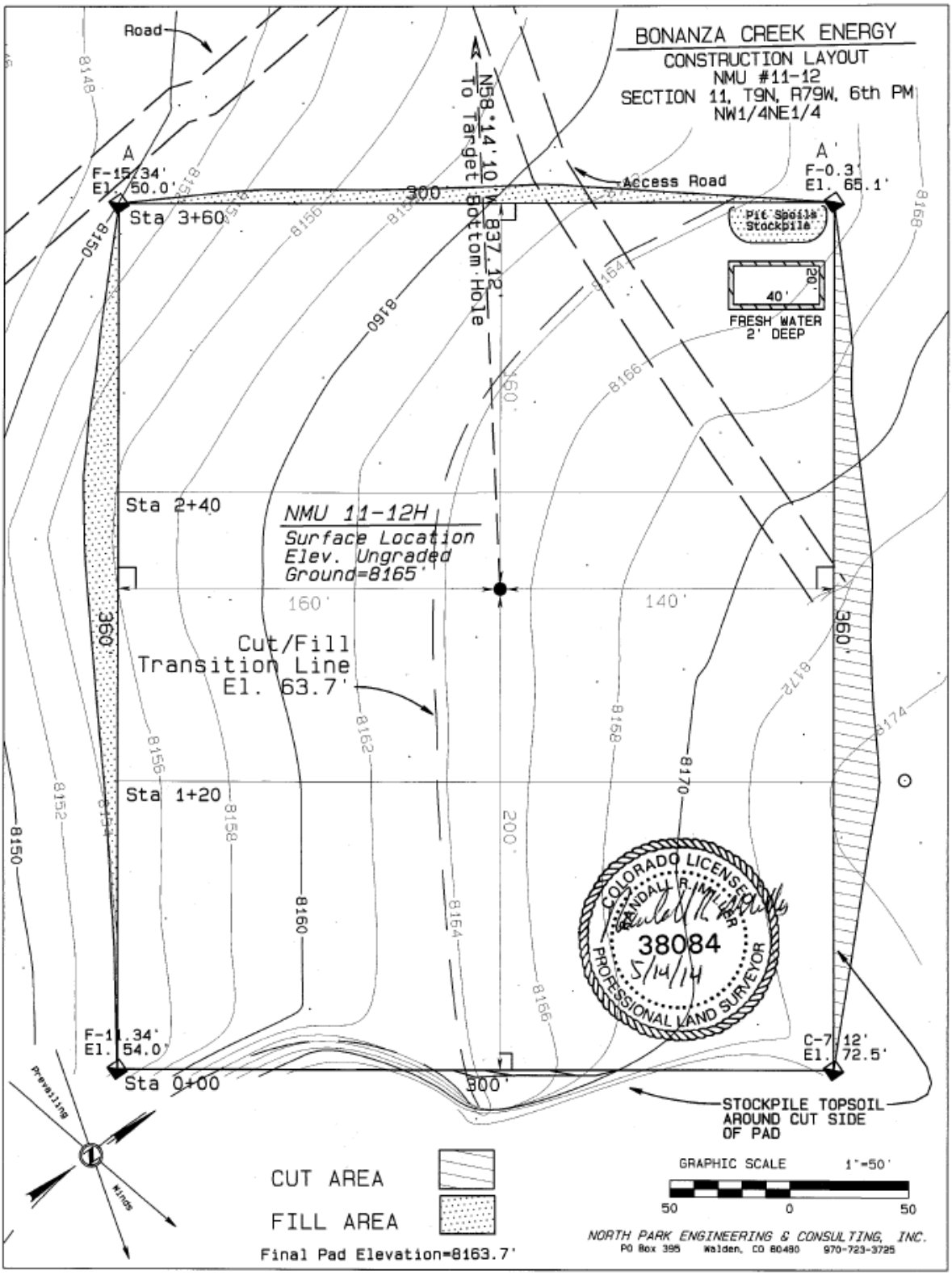
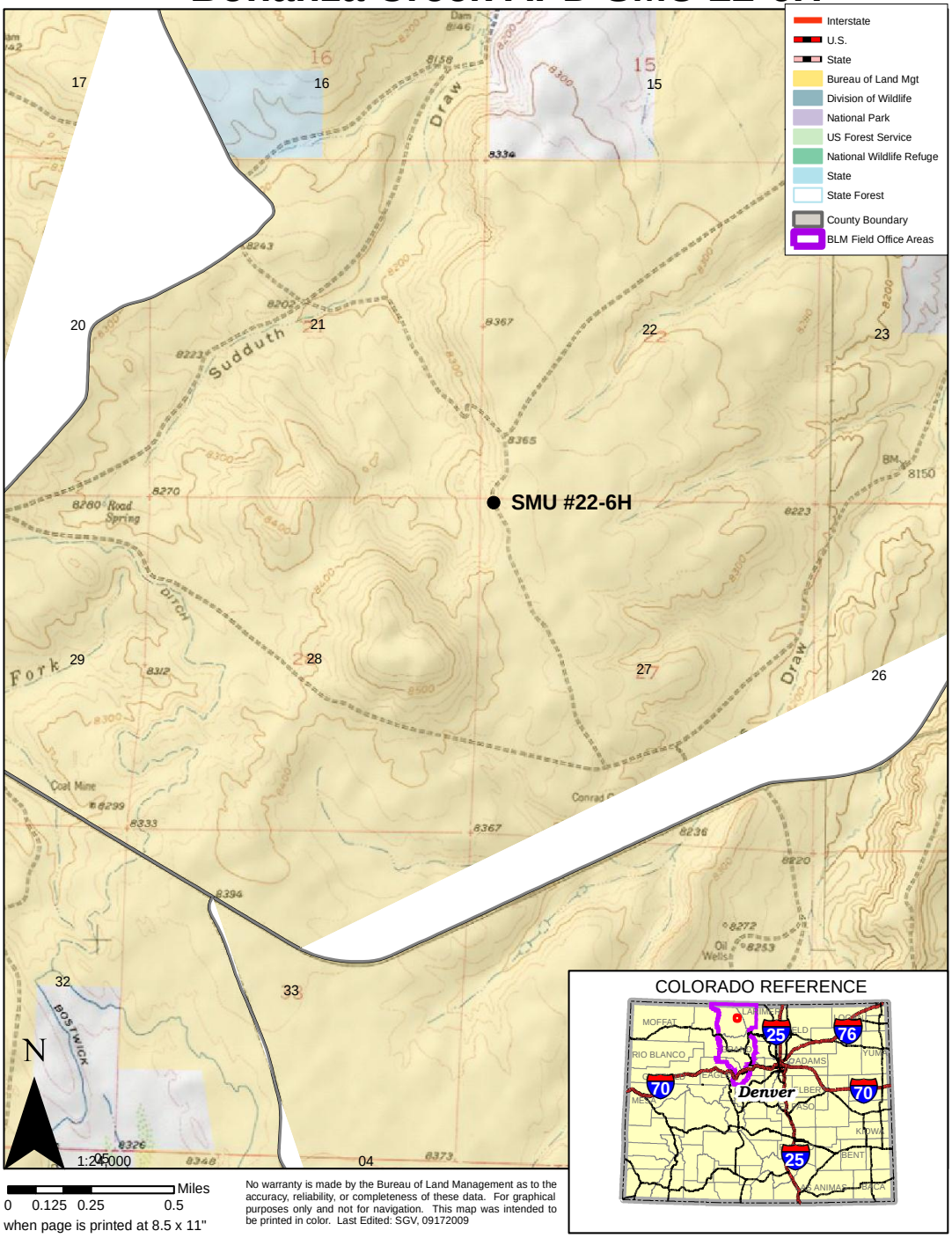

Map to Accompany
APPLICATION FOR PERMIT TO DRILL
Access Road Map
Bonanza Creek Energy Operating Company LLC
NMU 11-12H
SHL: 413' FNL, 1,886' FEL (NW/4 NE/4)
Sec. 11 T9N R79W
BHL: ±1,547' FSL, ±264' FWL (NW/4 SW/4) Lot 16
Sec. 2 T9N R79W
Jackson County, Colorado
Surface: Federal
Federal Mineral Lease: COC28963
McCallum Federal Unit: COC47650X
LEGEND
Existing Access (BLM) – On Lease
County Road 10
Revised by Upstream Petroleum Management, Inc.
Federal Mineral Lease
COC28963
BHL
Lease
106.26667° W
106.25000° W


BONANZA CREEK ENERGY
CONSTRUCTION LAYOUT
NMU #11-12
SECTION 11, T9N, R79W, 6th PM
NW1/4NE1/4
Road
A
F-15.34'
El. 50.0'
A'
F-0.3'
El. 65.1'
Access Road
N58°14'10"W 837.12'
To Target Bottom Hole
300'
Sta 3+60
Pit Spoils Stockpile
20'
40'
FRESH WATER
2' DEEP
Sta 2+40
NMU 11-12H
Surface Location
Elev. Ungraded
Ground=8165'
160'
140'
360'
Cut/Fill
Transition Line
El. 63.7'
Sta 1+20
200'
COLORADO LICENSED
RANDALL R. MARR
38084
5/14/14
PROFESSIONAL LAND SURVEYOR
F-11.34'
El. 54.0'
C-7.12'
El. 72.5'
Sta 0+00
300'
STOCKPILE TOPSOIL
AROUND CUT SIDE
OF PAD
Prevailing
Winds
CUT AREA
FILL AREA
Final Pad Elevation=8163.7'
GRAPHIC SCALE 1"=50'
50 0 50
NORTH PARK ENGINEERING & CONSULTING, INC.
PO Box 395 Walden, CO 80480 970-723-3725

Bonanza Creek APD SMU 22-6H



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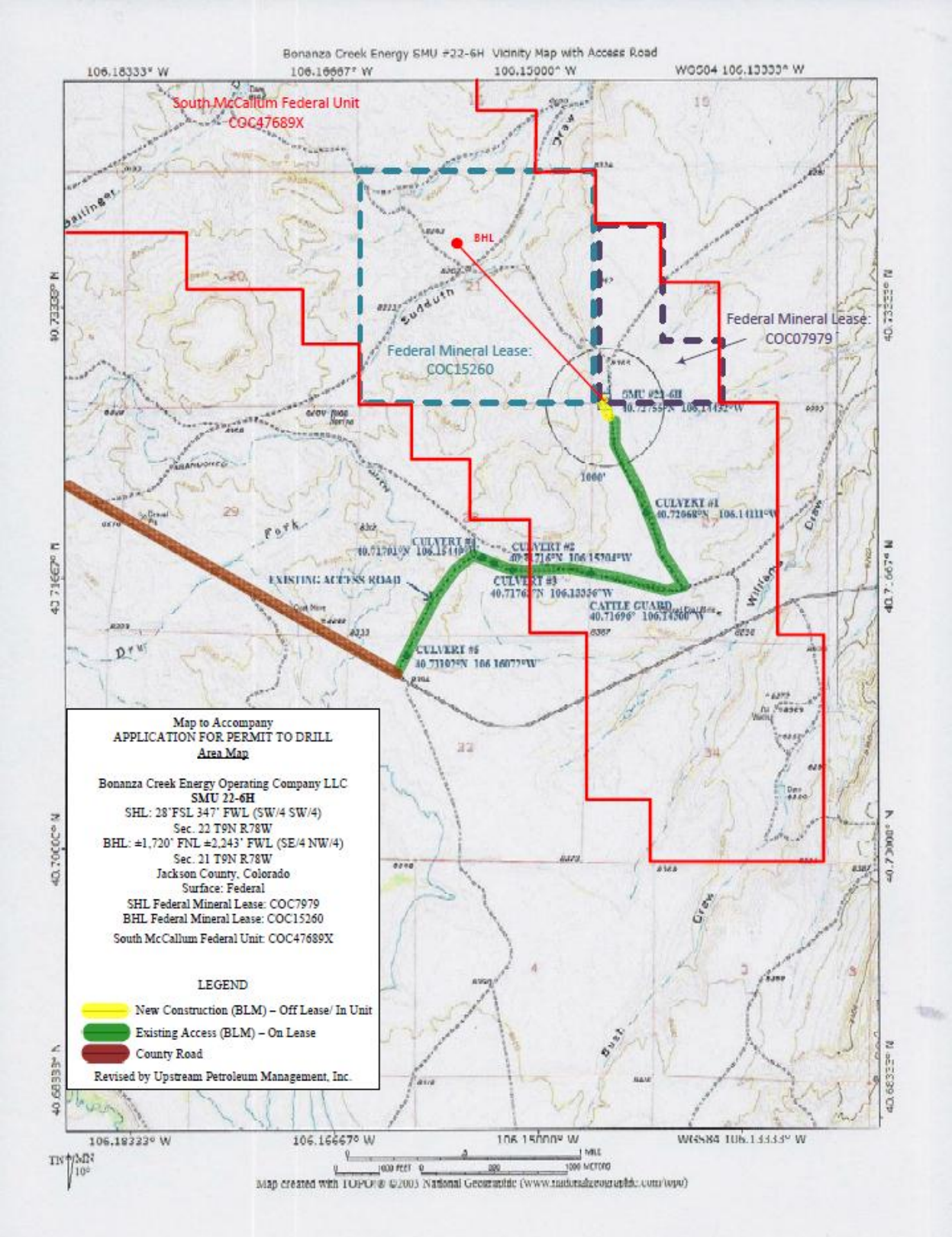
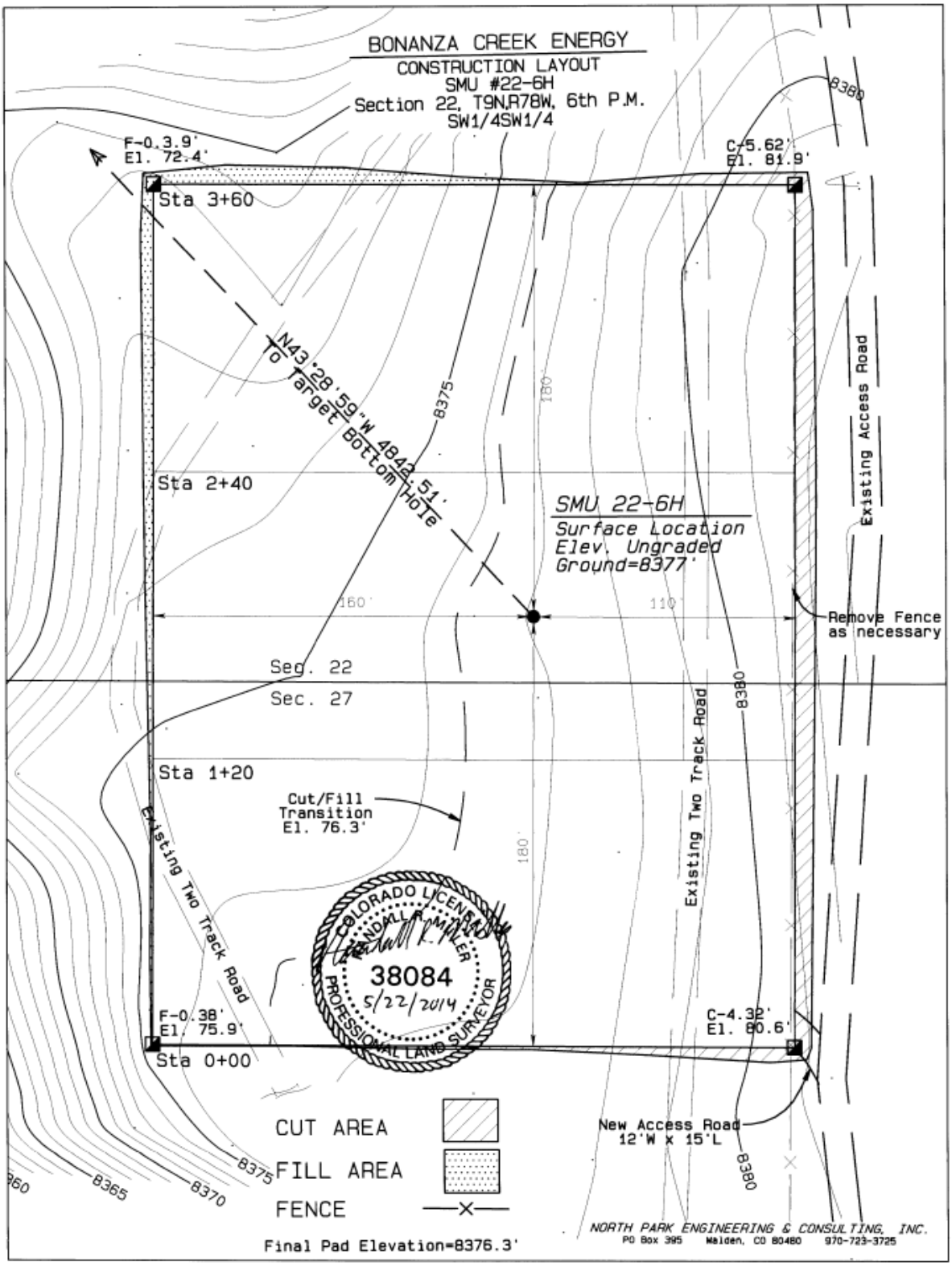

Bonanza Creek Energy SMU #22-6H Vicinity Map with Access Road
South McCallum Federal Unit
COC47689X
BHL
Federal Mineral Lease:
COC15260
Federal Mineral Lease:
COC07979
SMU #22-6H
1660'
CULVERT #1
CULVERT #2
CULVERT #3
CULVERT #5
EXISTING ACCESS ROAD
CATTLE GUARD
Map to Accompany
APPLICATION FOR PERMIT TO DRILL
Area Map
Bonanza Creek Energy Operating Company LLC
SMU 22-6H
SHL: 28'FSL 347' FWL (SW/4 SW/4)
Sec. 22 T9N R78W
BHL: ±1,720' FNL ±2,243' FWL (SE/4 NW/4)
Sec. 21 T9N R78W
Jackson County, Colorado
Surface: Federal
SHL Federal Mineral Lease: COC7979
BHL Federal Mineral Lease: COC15260
South McCallum Federal Unit: COC47689X
LEGEND
New Construction (BLM) – Off Lease/ In Unit
Existing Access (BLM) – On Lease
County Road
Revised by Upstream Petroleum Management, Inc.
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


BONANZA CREEK ENERGY
CONSTRUCTION LAYOUT
SMU #22-6H
Section 22, T9N,R78W, 6th P.M.
SW1/4SW1/4
F-0.3.9'
El. 72.4'
C-5.62'
El. 81.9'
Sta 3+60
N43°28'59"W 4842.51'
To Target Bottom Hole
8375
180'
Sta 2+40
SMU 22-6H
Surface Location
Elev. Ungraded
Ground=8377'
160'
110'
Existing Access Road
Remove Fence
as necessary
Seg. 22
Sec. 27
8380
Sta 1+20
Cut/Fill
Transition
El. 76.3'
180'
Existing Two Track Road
Existing Two Track Road
COLORADO LICENSED
KENDALL R. MILLER
38084
5/22/2014
PROFESSIONAL LAND SURVEYOR
F-0.38'
El. 75.9'
C-4.32'
El. 80.6'
Sta 0+00
CUT AREA
FILL AREA
FENCE
New Access Road
12'W x 15'L
8380
8375
8370
8365
Final Pad Elevation=8376.3'
NORTH PARK ENGINEERING & CONSULTING, INC.
PO Box 395 Walden, CO 80480 970-723-3725

The standard Conditions of Approval are incorporated as part of the Proposed Action and included as Attachment #1. The design features developed during the on-site inspection are described below, and are incorporated as part of the Proposed Action. Additionally, the surface-use plan provided by Bonanza is incorporated by reference as part of the Proposed Action. Surface disturbance expected from developing the wells is shown in the following chart, based on well pad dimensions and new road construction.

Well	**Well pad Disturbance (Acres)**	**Max Vertical Cut (ft.)**	**New Road disturbance (Lin. ft.)**	**Road Disturbance area (Acres)**	**Total site disturbance (Acres)**	**Anticipated Water Depletion plus dust abatement**
NMU 11-12H	3	8.71	0	Will utilize existing roads; may improve if necessary	3	*11,714 barrels (bbls)
SMU 22-6H	2.75	5.62	14'-16'W x 15'L	.005	2.755	*11,714 barrels (bbls)
Total	5.75	-	14'-16'W x 15'L	.005	5.755	23,428 barrels (bbls)

*Drilling water estimated at 10,814 bbls; dust abatement, if needed, is estimated at 900 bbls.

Design features of the Proposed Action (as per the Surface Use Plans (SUPs) submitted by Bonanza) for the NMU 11-12H and SMU 22-6H well sites (SUPs available at the Kremmling Field Office):

- NMU 11-12H well pad dimensions would be approximately 300' x 360'.
- SMU 22-6H well pad dimensions would be approximately 270' x 360'.
- Plans for improvement and/or maintenance of existing roads to be used for access is to maintain in as good or better conditions than at present. The roads would be maintained, and improved as necessary, to meet the minimum road standards found in The Gold Book and BLM 9113 - Roads Manual.
- Access to the SMU 22-6H would require approximately 15' of new road construction, with a running surface width of approximately 14'-16', total disturbed width to be no more than 30'.
- Improvement to the existing access road to the SMU 22-6H would include installing five culverts prior to commencement of drilling operations. At each culvert, riprap would be placed at the inlet and outlet. Drainage would consist of wing ditches between the existing road and the SMU 22-6H well site and would be installed prior to commencing drilling operations.
- Surfacing material, if necessary, will consist of native material from borrow ditches. The topsoil would be cleared by fanning back during the construction and crowning of the

road. Upon commencement of road construction, the topsoil would be replaced in the borrow ditches and would be seeded.

- Fence gates and/or cattle guards would be installed and/or upgraded. The fence would be cut and the cattle guard would be installed with a steel pole gate placed in the fence line, adjacent to the cattle guard.
- All permanent above-ground structures constructed or installed on location and not subject to safety requirements would be painted Shale Green.
- All disturbed, unused areas would be seeded. If drilled, the drill would be equipped with a depth regulator and seed would be planted between one-quarter and one-half inch deep. If broadcasted, the rate would be doubled (see attached seed mixture).
- Construction activities would not be conducted when soils are frozen, saturated, or during periods when watershed damages are likely to occur.
- If the proposed access road and well pad are dry during construction, drilling and completion activities, then water would be applied to help facilitate soil compaction and to minimize soil loss as a result of wind erosion. If needed, Bonanza estimates that approximately 900 barrels (bbls) of water may be used for dust abatement at each location. Fresh water would be obtained from an approved municipal source in Walden.
- Weeds would be controlled on disturbed areas within the exterior limits of the access road and well pad. Approval would be obtained from the Authorized Officer prior to use of herbicides.
- In the event that commercial production is established, the access road would be surfaced to an average minimum depth (after compaction) of four inches with two inch minus pit run gravel for all-weather access. Gravel used would be obtained from a contractor having a permitted source of materials within the general area. The new road would remain until the well is abandoned, at which time it would be obliterated and the road and pad area reclaimed. Topsoil must be of an adequate volume to spread to a minimum of 6" depth at final reclamation.
- The well pads would not have reserve pit, but would utilize a "closed loop" system.
- The closed loop system would be utilized during drilling operations and would be fenced on three sides; the fourth side would be fenced after the drilling rig moves off location. Drill cuttings would be contained in a dry cuttings pit, which would be lined with a 16-mil or thicker liner. Drilling and completion fluids would be contained in above ground tanks, and then hauled to a Department of Environmental Quality (DEQ) authorized disposal site.
- All human waste, garbage and non-flammable waste materials would be contained and disposed of at a state-approved disposal site.
- Bonanza would maintain a file of all MSDS for all chemicals, compounds and/or substances which are used during the course of construction, drilling, completion and production operations for the proposed well.
- Bonanza would maintain an Emergency Response Plan which includes notifying the BLM of all reportable spills of oil, produced water and hazardous substances.
- Fresh water would be obtained from an approved municipal source in Walden. Bonanza estimates that approximately 21,600 barrels (bbls) of North Platte River Basin water would be required for drilling both wells.

- Interim reclamation of the location and road would be done within six months after completion or plugging operations are finished (weather and wildlife stipulations permitting).

No Action Alternative: The No Action Alternative would deny Bonanza the proposed site developments for the NMU 11-12H well and the SMU 22-6H well and associated access road.

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):
The Proposed Action is subject to the following plan:

Name of Plan: Kremmling Resource Management Plan, Record of Decision (ROD)

Date Approved: December 19, 1984 (Updated June 1999), and as amended by Record of Decision on December 5, 1991 as described in the Colorado Oil and Gas Leasing and Development Final Environmental Impact Statement (O&G EIS).

Decision Number/Page: ROD (map 3, p. 14)

Decision Language: To facilitate orderly, economic and environmentally sound exploration and development of oil and gas resources using balanced multiple-use management (ROD, p.11). Important wildlife habitat will be protected with the use of no surface occupancy, timing limitations or controlled surface use stipulations and /or lease notices on oil and gas leases, and conditions of approval (COA) on permits (ROD, p. 3).

Decision Number/Page: II-B-12 pg.14

Decision Language: Provide the opportunity to utilize public lands for development of facilities which benefit the public, while considering environmental and agency concerns.

SCOPING, PUBLIC INVOLVEMENT, AND ISSUES:

Scoping: Internal scoping was initiated when the project was presented to the Kremmling Field Office (KFO) interdisciplinary team on November 12, 2013. External scoping was conducted by posting this project on the KFO's public room board on November 7, 2013 (SMU 22-6H) and November 14, 2013 (NMU 11-12H) and on-line at KFO's National Environmental Policy Act (NEPA) register. An on-site review occurred on April 25, 2014.

Issues: Access and road alignment, pad location, likelihood of cultural resource concerns and wildlife issues were discussed at the on-site meeting.

AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

Standards for Public Land Health: In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis (EA). These findings are located in specific elements listed below.

Cumulative Effects Analysis Assumptions: Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Table 1 lists the past, present, and reasonably foreseeable future actions within the area that might be affected by the Proposed Action; for this project the area considered was the Canadian River Watershed, the Natural Resources Conservation Service's (NRCS) 5th Level Watershed. However, the geographic scope used for analysis may vary for each cumulative effects issue and is described in the Affected Environment section for each resource.

Table 1. Past, Present, and Reasonably Foreseeable Actions

Action Description	STATUS		
	Past	**Present**	**Future**
Livestock Grazing	X	X	X
Recreation	X	X	X
Invasive Weed Inventory and Treatments	X	X	X
Spring or Water Developments	X	X	X
Wildfire and Emergency Stabilization and Rehabilitation	X	X	X
Wind Energy Met Towers			X
Oil and Gas Development: Well Pads Access Roads Pipelines Gas Plants Facilities	X	X	X
Power Lines	X	X	X
Oil Shale			X
Seismic	X	X	X
Vegetation Treatments	X	X	X

The geographic scope for the cumulative impact analysis is Jackson County. The 1991 Colorado Oil and Gas Leasing Final Environmental Impact Statement (O&G EIS) forecasted, for Kremmling Field Office, a total of 225 wells, of which 108 development and wildcat wells would be drilled on BLM lands (Appendix B, B20 & 21). Cumulative impacts for this forecasted development were analyzed in the O&G EIS based upon oil and gas surface disturbance totaling 2044 acres (Appendix B-2).

In regards to past actions regarding oil and gas activity, oil and gas was first discovered in northeastern Jackson County in 1926 by Continental Oil Company. This discovery marked the beginning of oil and gas development in the North McCallum Field. In 1952, oil was discovered in the Coalmont area southwest of Walden. Since that time, 13 fields have been discovered and developed, all in the North Park (Jackson County) area. Within these 13 fields, approximately 475 wells have been completed and approximately 50% of these wells were completed as dry holes.

In regards to present and future actions, there has been recent interest in the Coalmont Niobrara formation in southern Jackson County. There are currently three pending, and 14 approved, drilling permits for Jackson County; only two of the 17 applications are for wells to be drilled on federal surface.

When added to the impacts of all of the other actions in Jackson County, the cumulative impacts from this proposal are well within the 1% cumulative surface impacts projected for the Resource Area in the O&G EIS.

Affected Resources:
The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 2 lists the resources considered and the determination as to whether they require additional analysis.

Table 2. Resources and Determination of Need for Further Analysis

Determination[1]	Resource	Rationale for Determination
Physical Resources		
PI	Air Quality	See Analysis
NI	Geology and Minerals	Onshore Order #2 requires that the proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones and prospective mineral zones. Geologic and engineering reviews are completed to ensure that cementing and casing programs are adequate to protect all downhole resources. Known water bearing zones are protected by drilling requirements and, with proper practices, contamination of ground water resources is highly unlikely. Proper practices, drilling requirements, casing along with cement would ensure that drilling fluids remain within the well bore and do not enter groundwater.
NI	Soil Resources*	Both well pad locations were adjusted during the onsite visit to reduce the overall soil disturbances by minimizing the cut and fill. The final proposed locations do not have steep slopes or areas that pose stabilization or reclamation concerns. Existing access roads are used for both locations, reducing the amount of new disturbance.

Determination[1]	Resource	Rationale for Determination
		Although up to six acres of land would be disturbed, on a landscape scale, the soils would still be meeting land health standard 1 for upland soils. Monitoring to insure successful interim reclamation also helps negate overall impact to soils.
NI	Surface and Ground Water Quality*	The two proposed locations are located in the uplands, away from perennial waters. Design features to minimize surface erosion and reclaim disturbed areas will help protect surface water quality in the long term. State and federal drilling and completion regulations require the protection of groundwater quality.
Biological Resources		
NP	Wetlands and Riparian Zones*	Both proposed locations are in upland areas and would not directly impact wetland areas. The NMU 11-12H pad was moved further upland during the site visit to maximize the distance from intermittent Lee Draw, which does support some wetlands downstream from the location. The proposed action and design features would not indirectly impact wetlands.
PI	Vegetation*	See analysis
NI	Invasive, Non-native Species	Currently at proposed APD project locations NMU 11-12H and SMU 22-6H; no noxious, invasive species occur. See attached COA's and design features for mitigation criteria.
PI	Special Status Animal Species*	COA: see mitigation following analysis
NP	Special Status Plant Species*	Not present based on most recent surveys and on site visitation
PI	Migratory Birds	COA: see mitigation following analysis
NP	Aquatic Wildlife*	The Proposed Action is location in an upland area and will not impact aquatic species.
PI	Terrestrial Wildlife*	COA: see mitigation following analysis
Heritage Resources and the Human Environment		
NP	Cultural Resources	A Class III inventory has been completed for the area of potential effect for Bonanza Creek SMU 22-6H well (BLM #CR-14-22) and Bonanza Creek NMU 11-12H (BLM #CR-14-05). Both proposed actions are a **no effect**, there are **no historic properties** that would be affected.
NP	Paleontological Resources	The access roads and culvert and cattle guard areas are underlain at the surface by various Holocene and Pleistocene surficial deposits. These areas reveal no bedrock deposits at the surface and no fossils of any kind. Geologic formations sensitive for fossil resources are present, but will not be impacted by the proposed project. BLM standard "discovery" stipulation is part of the environmental assessment and is to be attached to any authorization allowing project to proceed.
NI	Native American Religious Concerns	To date only the Southern Ute Tribe has identified in a letter dated May 19, 2014, that there are properties of religious significance in the area of potential effect. There would be a no adverse effect to those resources. No other tribe has identified any area of traditional or spiritual concern within the areas of potential effect.

Determination[1]	Resource	Rationale for Determination
NI	Visual Resources	The proposed developments are within VRM Class IV, which allows for a high level of change relative to the existing landscape and may attract a casual observer's attention or even dominate the view. Both locations are within an existing oil and gas field. All above ground structures, not subject to safety requirements, would be painted Shale Green.
PI	Hazardous or Solid Wastes	See analysis for Hazardous or solid wastes.
NI	Fire Management	The proposed action would have little to no effect on Fire Regime Condition class, due to the small size of the disturbance(s). Well pads in the area near the site(s) have not shown any increase in fire ignitions do to human involvement, so it is believed that shouldn't change. There may be an impact, due to the disturbance of sage grouse habitat that may reduce the chance of future fuels projects in the area, this should be minimal with the current design features and most likely wouldn't be an impact to Fire Management.
NI	Social and Economic Conditions	There would not be any substantial changes to local social or economic conditions.
NP	Environmental Justice	According to the most recent Economic Census Bureau statistics (2009), there are minority and low income communities within the Kremmling Planning Area. There would be no direct impacts to these populations.
PI	Noise	See Analysis.
Resource Uses		
NP	Forest Management	There are no forest resources in the project area.
PI	Rangeland Management	See analysis
NI	Floodplains, Hydrology, and Water Rights	The proposed action is not located in a floodplain and would not increase the flood hazard or impact the functionality of a floodplain. There are no hydrologic concerns or potential impacts to federal or private water rights from the proposed action.
NP	Realty Authorizations	There are no rights-of-way in the proposed project area.
PI	Recreation	See Analysis.
PI	Access and Transportation	See Analysis.
NP	Prime and Unique Farmlands	There are no Prime and Unique Farmlands within or adjacent to the project area.
Special Designations		
NP	Areas of Critical Environmental Concern	There are no Areas of Critical Environmental Concern within the project area.
NP	Wilderness and Lands with Wilderness Characteristics	There is no Wilderness, Wilderness Study Area or areas found to possess wilderness characteristics in the project area.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers within the project area.
NP	Scenic Byways	There are no Scenic Byways within the project area.

[1] NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.
* Public Land Health Standard

AIR QUALITY

Affected Environment: The North Park area is considered to be meeting the national and state ambient air quality standards, but air quality data is fairly limited. The proposed wells are located to the southwest of the Rawah Wilderness Area, which is a Class 1 area. Class 1 areas are protected under the Clean Air Act, by severely limiting the amount of additional air pollution that can be added to these areas. The NMU 11-12H well would be approximately 8 miles from the wilderness boundary, and the SMU 22-6H would be seven miles away. Prevailing winds in the area are from the west-southwest.

In the Kremmling Resource Management Plan Revision, an emissions inventory was completed for expected oil and gas activities. As part of the Plan, the BLM has committed to managing BLM-authorized activities to protect air quality and air quality related values, within the scope of its authority. The Plan also included an Air Resource Management Plan, which will go into effect once the Resource Management Plan's Record of Decision is signed, which is anticipated to occur in September, 2014.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action would result in localized short-term increases in carbon monoxide, nitrogen dioxide, ozone, and sulfur dioxide concentrations, but well below applicable ambient air quality standards. Hazardous air pollutant concentrations would be well below standards and the related short and long term cancer risks to well rig operators and nearby residents would be below significance levels. Minor adverse impacts to air quality would result in the immediate vicinity of the well development. The Emission Inventory for the Kremmling Resource Management Plan Revision (2014) estimated that benzene emissions from oil and gas activities comprise the largest percentage of countywide emissions, at about 14%. Particulate matter with diameters of 10 microns or less (PM_{10}) and volatile organic compounds (VOCs) are the next largest pollutant emissions. The proposed dust control measures and gravel surfacing help reduce the PM_{10} emissions, as does the use of existing roads, as the total surface disturbance per well is reduced. The proposed pad locations would result in increased travel on dirt and graveled roads. Using directional drilling allows the pad to be located on relatively level ground, reducing the amount of construction and production emissions ($PM_{2.5}$, $PM_{10,}$ vehicle exhaust). The use of a closed loop system also eliminates the evaporative emissions from open pits.

Cumulative Effects: The Air Resources Management Plan commits the BLM to track the actual annual criteria and VOC pollutant emissions from BLM authorized oil and gas activities within the planning area. The BLM will conduct a review of annual emissions and evaluate development projected for the next three to five years. Working with the Colorado Department of Health and the Environment and the EPA, the BLM will determine if current management strategies ae meeting air quality goals and objectives, and if needed, adapt management strategies to protect air resources.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, these wells would not be drilled. The applicant has a valid lease, however, and could apply for a permit to drill within the leases.

Cumulative Effects: None

Mitigation: None

GEOLOGY AND MINERALS

Affected Environment: The proposed wells would be in favorability zone 4 (high potential area for oil and gas). Both wells would penetrate the Pierre Shale B Sand Formation and the Niobrara Formation.

Environmental Consequences of the Proposed Action (Direct and Indirect): The casing and cementing program would be adequate to protect all of the resources, minerals and fresh water zones. The blowout preventer (BOP) system would be analyzed to ensure Onshore Order No. 2 standards are adequately met.

Cumulative Effects: Fluid mineral production from the proposed wells would contribute to the draining of hydrocarbon-bearing reservoirs within the geological formations in this area, an action that would be consistent with BLM objectives for mineral production.

Environmental Consequences of the No Action Alternative: Under the No Action alternative, there would be no development of fluid minerals and no effects on existing fluid mineral reservoirs.

Cumulative Effects: With the No Action Alternative, there would be no further depletion of the hydrocarbon resources of the targeted formations. In addition, oil and gas would not be available to the national economy and there would be no revenues available to federal, state, and local treasuries from the recovery of oil and gas resources.

Mitigation: None

VEGETATION

Affected Environment: The proposed NMU #11-12H well site occurs in Dry Exposure and Valley Bench ecological range sites, and the proposed SMU #22-6H well site occurs in the Valley Bench ecological range site.

The physical and vegetation characteristics for Dry Exposure are the steep slopes, ridges, hill tops and other exposed, tree-less areas seen from high mountain valleys and parks. Slopes vary from gentle to steep rolling with exposure or direction of slope not in any consistent direction. Although the average annual precipitatioin is in the 9 to 15 inch zone, the effectiveness of the moisture is sharply reduced because of slopes, soils, snow removal by wind,

and high evaporative rates. The almost incessant winds strongly influence the plant cover. These winds act to limit plant height growth to a few inches on most plants. The bald appearance of the range site is because of the absence of large shrubs. Grasses and cushion type forbs characterize the site. Important grasses are bluebunch wheatgrass, needle-and-thread grass, junegrass, indian recigrass, and blue grama. Cushion type and mat forming forvs and shrubs include fringed sage, low rabit brush, buckwheat, daisy, phlox, and pussytoes. Percent ground cover for the plant community is approximately 25%.

The physical and vegetation characteristics for Valley Bench are broad-sweeping benchlands interspersed with low ridges and shallow swales. Slopes rarely exceed 15 percent, with these being mostly along the major drainages. Most of the site is within an elevation range of 7300 to 8300 feet. This treeless grassland-sagebrush plant community contains serveral bunch grasses mixed with turf-forming wheatgrasses. Pine needlegrass, muttongrass, needle-and-thread, junegrass, and bluebunch wheatgrass are the most frequently occurring bunchgrasses. Wheatgrasses are the most common rhizomatous grasses. Big sagebrush and low rabbitbrush are the principal shrubs. Cushion type forbs including pussytoes, phlox, and buckwheat make up a rather significant part of the community.

Environmental Consequences of the Proposed Action: The actions proposed would remove all vegetation from the disturbed areas. The primary threat to the health of the native plant communities in the project areas would be from potential establishment and proliferation of noxious and invasive weed species. The greatest longer-term impact on vegetation would be the loss of the native shrub component of the plant communities impacted.

The total disturbance associated with construction of the well pads, upgrading access roads, and installation of the pipelines would be short-term. The surface disturbance associated with the pipelines would be reclaimed immediately after installation. The majority of each well pad and shoulders of the roads would be reclaimed following well completion leaving only the production area of the well pad and the travel surface of the access road un-vegetated.

Environmental Consequences of the No Action Alternative: None

Mitigation: Implement the reclamation actions outlined in the Standard Condition of Approval section above.

Finding on the Public Land Health Standard #3 for Plant and Animal Communities: (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): The proposed well sites currently meet standard #3 and would continue to meet the standard after successful reclamation.

SPECIAL STATUS SPECIES

Affected Environment:

The Proposed Action is located within the North Platte River basin, which is tributary to the Platte River System. The United States Fish and Wildlife Service (FWS) has determined that any water depletion within the Platte River jeopardizes the continued existence of one or more federally-listed threatened or endangered species and adversely modifies or destroys designated and proposed critical habitat. Depletions may affect and are likely to adversely affect the

whooping crane, the interior least tern, the piping plover, the western prairie fringed orchid, and the pallid sturgeon in Nebraska.

Greater Sage-Grouse (*Centrocercus urophasianus*): This BLM sensitive species is currently listed as a candidate species for listing under the Endangered Species Act (ESA) of 1973 and is scheduled to have a formal decision of listing in 2015 by the U.S. Fish and Wildlife Service. Greater sage-grouse are known to occupy the area of the proposed action year round. The United States Department of Interior BLM has the authority for conservation of Greater sage-grouse through (1) the Federal Land Management Policy Act (FLPMA) of 1976 (43 U.S.C. 1701 et seq.: 90 stat. 2743; PL 94-579; (2) the Sikes Act, Title II (16 U.S.C. 670 et seq.), as amended; and (3) The BLM Manual 6840, Special Status Species Management (BLM: sensitive species) while the sage grouse is under review for listing under the Endangered Species Act (ESA) (US Fish and Wildlife Service: candidate species). Specifically, the FLPMA guidance on sensitive species authorizes that "the public lands would be managed in a manner that would protect the quality of scientific, scenic, historical, ecological, environmental, air, atmospheric, water resource, and archeological values; that, where appropriate, would preserve and protect certain public lands in their natural condition; that would provide food and habitat for fish and wildlife and domestic animals…(43 USC 1701 Sec. 102 (a) (8))."

Section 06 (C) of the 6840 Manual gives the following guidance on candidate species: "Consistent with existing laws, the BLM shall implement management plans to conserve candidate species and their habitats and shall ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed." Section 12 of the 6840 Manual states: "Actions authorized by the BLM shall further the conservation of federally listed and other special status species and shall not contribute to the need to list any special status species under provisions of the ESA, or designate additional sensitive species under the provisions of this policy." The Department of Interior Fish and Wildlife Policy: State-Federal Relationship (43 CFR Part 24.4 (c)) states in part that "…the Secretary of Interior is charged with the responsibility to manage non-wilderness BLM lands for multiple uses, including fish and wildlife conservation.

Current science regards the lek, or male strutting grounds, as the focal point for the sage grouse life cycle and therefore management efforts. Hagen and others state that 80% of nesting occurs within 4 miles of a lek site (Hagen et al 2007). Currently there are 3 lek sites in the vicinity of the proposed wells and of those three, two leks remain active. The closest lek is within approximately 1.1 miles of the proposed NMU #11-12H pad site. Both proposed well sites exist within a 4 mile proximity to leks and currently represent important nesting and early brood rearing habitats. SMU 22-6H is proposed on a windswept ridgeline that also may represent wintering habitat for these birds.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Platte River Recovery Implementation Program (PRRIP), established in 2006, is implementing actions designed to assist in the conservation and recovery of the target species and their associated habitats along the central and lower Platte River in Nebraska through a basin-wide cooperative approach agreed to by the States of Colorado, Nebraska, and Wyoming and the U.S. Secretary of the Interior. A programmatic biological opinion was completed on June 16, 2006, that covers new depletions, and in 2009,

Jackson County joined the South Platte Water-Related Activities Program (SPWRAP) for ESA coverage under the PRRIP. Jackson County's membership covers agricultural and municipal depletions within the county. The proposed well is estimated to require 21,600 barrels of water which would be about 2.78 acre-ft. of water. The operator has secured municipal water to use for the well, and the depletion is covered by Jackson County's SPWRAP membership.

Greater Sage-Grouse (*Centrocercus urophasianus*): Direct effects to this species include removal of 5.7 acres of nesting and brood rearing habitat and fragmentation of the sagebrush community. This habitat disturbance removes available food and cover for grouse during early life stages. Fugitive noise from construction and operation of the site also represents a direct effect to grouse in the vicinity. Raising anthropogenic sound decibels above ambient levels has shown avoidance of certain behaviors in grouse from as far as 4.3 miles away (Piquette et. al. 2014). Infrastructure created by the proposed action represents a striking hazard that may result in grouse mortality and avoidance behavior. Flares used to burn off natural gas as well as lighting during the drilling process would cause localized unnatural lighting that may disrupt a sage grouse's ability to effectively navigate and avoid predators.

Indirect effects include the use of the proposed well infrastructure by raptors and ravens (corvid family) that may lead to an increase in nest predation, brood abandonment and avoidance behavior. Decreases in sagebrush have shown an increase in sage grouse nest predation by ravens and badger (*Taxidea taxus*) (Coates et. al. 2010). Habituation behavior to the constant motion of the proposed action's well jack is largely unknown by sage grouse and would likely cause avoidance behavior from the near vicinity of the well site or adjacent ridges where visual and audio cues may travel to. Indirect effects may also stem from overall loss of recruitment caused by the above direct effects.

Cumulative Effects:

Oil extraction is the primary activity in the McCallum oil field and outside of cattle grazing is likely to be the dominant use of the area in the foreseeable future. Currently 138 wells in the McCallum field exist with 68 in production and 15 more could reasonably be expected over the next 20 years. Since the 1920's there have been approximately 475 wells drilled in the McCallum area. This activity over the McCallum area has, and will contribute to habitat fragmentation, which is a leading threat to sage grouse populations.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under this alternative, two well sites would not be developed. Greater Sage-grouse would not be negatively impacted by the above direct and indirect effects of these sites. Habitat connectivity would remain intact relative to the proposed action.

Cumulative Effects: It is likely that the benefits to sage grouse by the no action alternative would be short lived due to the oil potential available in the area and the ever increasing foreign and domestic demands for this resource. Previous and current well sites at varying levels of reclamation have altered and fragmented the habitat that these birds use.

Mitigation: Conditions of Approval:

1) Timing Limitation: Dec. 16- March 15 for crucial sage grouse winter habitat
2) Timing Limitation: March 15-June 30th for breeding and summer sage grouse.
3) Timing limitation: Well site visitation between 9 am – 4pm during lekking season of March 1- May 15.
4) Voluntary mitigation **ratio of 3:1** (3 acres restoration for every 1 acre of disturbance) for habitat restoration for each activity. This comes as a best management practice request for offsetting impacts to priority sage grouse habitat by providing a net loss of cumulative fragmentation over time. These mitigation credits will be recorded and produced in annual invoices/reports for both the operating company and the U.S. Fish and Wildlife Service to reflect these improvements for sage grouse conservation efforts. Industry companies are encouraged to work closely with the BLM and Colorado Parks and Wildlife biologists to coordinate these efforts in priority areas. These areas will have an agreed upon desired condition and be monitored by the BLM to ensure success of application.

Finding on the Public Land Health Standard #4 for Special Status Species:
Since Greater Sage-grouse is sagebrush obligate species it is largely dependent on the vegetation where it resides for food and cover. Standard 3 for vegetation and animal communities shows that this standard is meeting and would continue to meet upon successful reclamation of the site. However, sage grouse lek attendance was down for this area in 2013 for unknown reasons. If this trend continues, the health of these populations may dwindle causing standard to no longer meet standard 4 for special status species. Currently this action combined with mitigation measures is expected to continue to meet standard 4.

References cited:

Coates, P. S., *and* D. J. Delehanty. 2010. *Nest predation of greater sage-grouse in relation to microhabitat factors and predators.* Journal of Wildlife Management ***74***:*240–248*.

Daniel Piquette, Dr. Andy Keck, Nathan Seward, Brian P. Magee, Dr. Patrick A. Mage1, and Dr. Gail Patricelli. 2014. *ACOUSTIC SOUNDSCAPES IN THE GUNNISON BASIN AND EFFECTS OF ANTHROPOGENIC NOISE ON GUNNISON SAGE-GROUSE (CENTROCERCUS MINIMUS) IN THE GUNNISON BASIN, COLORADO:* Colorado Parks and Wildlife Final Report

MIGRATORY BIRDS

Affected Environment: A variety of migratory bird species, primarily birds of prey and songbirds, use the proposed area. Surveys conducted in 1994 by the Colorado Breeding Bird Atlas Partnership recorded many species in the area including Swainson's hawks, Red-tailed hawks, Golden Eagles, Prairie Falcons, Green-tailed Towhees, Mountain and Western Bluebirds, Sage Thrashers, Brewers's sparrow, Killdeer, Horned Larks, American Kestrals, and Common Nighthawks in the sagebrush habitat common to these allotments. More current inventories do not deviate from this list. Species common in and adjacent to this area in mixed lodgepole pine

and aspen forests, include Black-capped Chickadees, Clark's Nutcrackers, Steller's and Gray Jays, and Northern Flickers. The nesting time period is of special importance as the ability to create a nest, incubate, and rear chicks to fledging is a vulnerable time period for birds, and disturbances to nesting activities can lead to larger consequences for individual birds. In addition, because birds are generally territorial during the nesting season, their ability to access and utilize sufficient food is limited by the quality and availability of the territory occupied. During non-breeding seasons, birds are generally non-territorial and able to feed across a larger area and wider range of habitats.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects:

The Project Area and vicinity are already disturbed by cattle grazing practices and oil and gas development. Some birds have adapted to, and currently use, habitat patches within well fields for reproduction and growth. The proposed action would remove 5.7 acres of nesting habitat from sagebrush obligate species such as the Brewer's sparrow, sage thrasher, and Green-tailed towhee. However, suitable habitat exists in the surrounding area and the project construction would not take place during the primary nesting season of May 15- July 15. Other direct effects include perching and entrapment hazards that newly introduced infrastructure would pose. It is unlikely that these structures would have population impacts to migratory bird species.

Cumulative Effects:

Extensive use of the McCallum field by oil drilling activities combined with the current proposed action and reasonably foreseeable development makes available undisturbed and contiguous sagebrush vegetation communities scarcer for breeding migratory birds. The threshold of disturbance of what many of these species can endure while maintaining adequate production is difficult to quantify and variable from species to species but is likely to have negative population trends over time for some sagebrush obligate species that require larger tracts of continuous sagebrush. Fortunately industry development has not experienced the typical "boom and bust" cycles in this area allowing for species to become more adapted to these types of disturbances. Cumulative structures of 68 producing wells combined with current and future proposed actions have the potential to cause "take" of migratory birds by a variety of methods of daily well operations. These impacts could cause population level effects in the area. Some species of migratory birds may become displaced into other available habitats.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under this alternative, two well sites would not be developed. Migratory birds would not negatively impacted by the above direct and indirect effects of these sites. Habitat connectivity would remain intact relative to the proposed action.

Cumulative Effects: : It is likely that the benefits to migratory birds by the no action alternative would be short lived due to the oil potential available in the area and the ever increasing foreign and domestic demands for this resource. Previous and current well sites at varying levels of reclamation have altered and fragmented the habitat that these birds use.

Mitigation: Condition of Approval:
1) No pad or rig construction or erection activities during May 15-June 15 to avoid take of migratory birds during the primary nesting season. 2) Any secondary containment system would be covered in a manner to prevent access by migratory birds. The operator would construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment and cap any open non-production piping to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, and in-line units.

TERRESTRIAL WILDLIFE

Affected Environment:

The proposed action is within an area that provides upland habitat for a variety of wildlife species. Large mammals which use the allotments at least part of the year include mule deer, pronghorn, Rocky Mountain elk, moose, black bear, and mountain lions. Small mammals include coyote, red foxes, bobcat, and a variety of small rodents. Mule deer, pronghorn antelope, and elk use the area yearlong with most use occurring during the winter. The entire proposed project area is within critical winter range for pronghorn and elk. Black bear and mountain lion use of the allotments occurs sporadically yearlong.

Big Game: Wintering habitat conditions are associated with individual survival and body condition needed to support recruitment and therefore populations as female gestation periods occur over harsh winter months before parturition in the spring. Elk and pronghorn winter habitats overlap with the proposed action. Recent Data Analysis Unit (DAU) plans produced by Colorado Parks and wildlife estimate that elk numbers for E3 in this area are nearly double of herd objectives. Conversely, pronghorn populations are reported at being on the lower end of herd objectives for the North Park plan A3.
(http://cpw.state.co.us/thingstodo/Pages/HerdManagementPlans.aspx)

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects:

The proposed action would remove 5.7 acres of habitat and may cause avoidance behavior from construction and production activities. Fugitive noise may also represent a direct affect contributing to avoidance behavior. Light pollution caused by construction, rig erection, and natural gas flare may cause unnatural localized impacts that discourage use by terrestrial wildlife far outside of the pad sites. These effects by the proposed action are not thought to impact elk populations to the extent that herd objectives would not be met. Due to the observed use (high pellet distribution) of the NMU #11-12H pad during the on-site visitation on 4/25/14, and the DAU report showing pronghorn populations on the lower end of objectives it is possible that these populations could be negatively affected to the point where they are no longer in balance with their surrounding habitats. Energy infrastructure largest impact to pronghorn is believed to deviate their winter migration routes (Berger et. al. 2007), and indeed Easterly and others recorded substantially lower population levels near energy development during the winter months (Easterly 1991).

Cumulative Effects:

Many terrestrial wildlife species would have a large variation of responses from the cumulative impact of the proposed action combined with other oil drilling activities in the area. Big game species are seen as having the largest impact by cumulative effects. Analogous research performed in northeast Wyoming on industry development showed a greater than 50% avoidance of energy production infrastructure in wintering habitat by elk and a heavier reliance on transitional habitats (Buchanan et al. 2014). It is reasonable to believe that pronghorn would experience similar avoidance levels and would become more reliant on habitats outside the McCallum area. The amount of past and present habitat alteration combined with anticipated future occupation of industry in the McCallum oil field has and will continue to fragment and disrupt wildlife use of this area. Fortunately, large amounts of intact winter habitat exist in the North Park area despite the loss of winter value in McCallum.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects:

Under this alternative, two well sites would not be developed and the direct and indirect effect discussion above would not be realized.

Cumulative Effects:

It is likely that the benefits to terrestrial wildlife by the no action alternative would be short lived due to the oil potential available in the area and the ever increasing foreign and domestic demands for this resource. Previous and current well sites at varying levels of reclamation have altered and fragmented the habitat that these animals use.

Mitigation: Conditions of Approval:

- Timing Limitation: Dec. 1- March 15 for winter big game

Finding on the Public Land Health Standard #3 for Plant and Animal Communities:

Since terrestrial wildlife populations are closely tied to the condition of the vegetation in standard three, it is reasonable to conclude that this standard would continue to be met once reclamation has successfully taken place. Although, given the large population of elk and their predicted avoidance of the McCallum field area, other surrounding habitats on public, state, and private lands may receive a disproportionate amount of use by these large animals in return.

Literature Cited:

Berger, K.M. J. Beckman, and J. Berger. 2007 *Wildlife and energy development: Pronghorn on the Upper Green River-year 2 summary*. Bronx, NY: Wildlife Conservation Society

Clay B. Buchanan, Jeffrey L. Beck, Thomas E. Bills, and Scott N. Miller. 2014. *Seasonal Resource Selection and Distributional Response by Elk to Development of a Natural Gas Field.* Rangeland Ecol Manage 67:369–379 | July 2014 | DOI: 10.2111/REM-D-13-00136.1

Easterly, T.A. Wood, and T. Litchfield. 1991. *Responses to Pronghorn and Mule Deer to Petroleum Development on Crucial Winter Range in the Rattlesnake Hills.* Completion Report a-1372. Cheyenne: Wyoming Game and Fish Department.

HAZARDOUS OR SOLID WASTES

Affected Environment: Some potentially hazardous materials would be used during well drilling and maintenance. In addition, solid waste would be generated during these proposed activities.

According to 29 CFR 1910.1200(g), the oil and gas operator is to maintain a file containing Material Safety Sheets (MSDS) for all chemicals, compounds, and/or substances which are utilized during the course of construction, drilling, completion, and production operations of this project. This file is to be available at all times employees are present at the site. Hazardous materials that may be present at the site include drilling mud and cementing products that are primarily inhalation hazards. Flammable or combustible motor fuels would be present. Proprietary materials necessary for well completion and simulation such as acids and corrosives are often used. Human solid and liquid wastes would be generated primarily during the construction and drilling phases of the project.

Environmental Consequences of the Proposed Action: There would be no direct, indirect, or cumulative impacts from the Proposed Action. However, this is dependent upon responsible use of chemicals and immediate containment and adequate cleanup in the event of a release. Consequences would be dependent on the volume and nature of the material released. In most situations involving hazardous materials, there are ways to remediate the area that has been contaminated.

In the No Action Alternative, if the application were denied, there would be no hazardous materials used and/or released.

Mitigation: None

RANGELAND MANAGEMENT

Affected Environment: The NMU #11-12H is located in allotment #07080, and the SMU #22-6H in allotment #07135. In allotment #07135, the well site is located just Northeast of a livestock well with two tanks and a solar panel. In both allotments, cross fences and boundary fences are present.

Environmental Consequences of the Proposed Action: If construction occurs during the timeframe livestock are grazing these areas, construction activities could disrupt the normal use patterns of livestock. There is potential for injury to livestock by construction equipment (e.g., vehicle collisions with livestock). Damage to fences or gates left open could interfere with control of cattle and ultimately with proper utilization of the rangeland resource. These impacts would be greatest during the construction phase. Pad construction, the associated access road upgrades, and pipeline construction would result in a short-term forage loss to livestock initially.

Environmental Consequences of the No Action Alternative: None

Mitigation: None

RECREATION

Affected Environment: The Proposed Action is within the McCallum Oil Field locality and has a moderate to high level of development. Recreation within the general area includes hunting, Off-Highway Vehicle use, bicycling, hiking, camping, wildlife viewing, scenic driving, recreational target shooting, and auto touring. Recreation opportunities are typically not restricted but are limited in quality due to the development within the McCallum Oil Field locality. A BLM developed Auto Tour within the McCallum Oil Field provides information and viewing opportunities of the wells, wildlife habitat and reclaimed wells. Jackson County manages a Shooting Range within the area of the McCallum Oil Field that provides visitors with developed range providing targets at varied distances.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Due to the level of development of the general area, there would be limited direct and direct effects to Recreation opportunities in the area. Directly the greatest effect would be related to the potential for loss of access to the well locations if access was to be restricted as discussed in the Access and Transportation section. Recreational activities as listed above would still occur but the quality of some may be effected due to increased development and change in setting. The proposed well NMU 11-12 is in an area that is highly developed and would likely not be noticeable to the casual visitor having minimal if any impacts to the recreational activity they are participating in. Proposed well SMU 22-6H is in less of a developed area and may be more noticeable to the casual visitor and having a greater impct on the recreational activity they are participating in.

Cumulative Effects: Cumulatively, with past present and foreseeable actions the Proposed Action would have limited effects to Recreation within the McCallum Oil Field due to the level of existing development. The qualities of the Recreation opportunities are limited by the level of development and while they do occur within the area, visitors to the North Park area have numerous alternative locations to recreate in and typically due.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under No Action Alternative, the two well sites would not be developed and impacts as discussed in the Proposed Action discussion would not occur.

Cumulative Effects: Under the No Action Alternative there would still be cumulative effects within the general McCallum Oil Field area and within North Park region due to the current levels of development and the potential for increased development overtime.

Mitigation: None.

ACCESS AND TRANSPORTATION

Affected Environment: The Proposed Action is within an area that has had historic development with numerous access roads and developed pipelines. Existing access roads are present where the proposed development for exploration and production would occur. The road accessing NMU 11-12 is currently suitable for the planned development. An existing road is provides access to the proposed development of SMU 22-6H which includes approximately 15 feet of new road construction. This road is currently not suitable for levels of traffic associated with development. While several historic wells and areas within the McCallum Oil Field locality are accessible to the public, new development often requires additional fencing and signage to protect for public health and safety by restricting access to these locations.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action would result in a substantial increase in truck traffic related to the proposed development. The largest increase would be during rig-setup, drilling, and completion activities. Once the wells are producing, traffic would decrease to occasional visits for monitoring or maintenance activities. Additional increases in truck and equipment traffic would occur with improvements to the existing road and construction of new road for SMU 22-6H as identified in the Design Features. Truck and equipment traffic may vary from site to site and can be dependent on amounts of equipment and water required to complete activities and begin production. Drilling data for well development in Colorado indicate that approximately 1,160 truck trips over a 30-day period would be required to support the drilling and completion of each well (Table 3). Degradation of existing roads may occur due to heavy equipment travel with an increase in dust and noise likely commensurate to the level of use. Design features to apply water to roads during construction when dry would likely minimize dust to acceptable levels. Fencing and signage required to provide for public health and safety by restricting access would impact public access on BLM administered lands. The two well pads proposed size combined (NMU 11-12: 300'x360'; SMU 22-6H: 270'x360') if restricted would directly impact public access by approximately 8.925 acres.

Table 3. Traffic Associated with Drilling and Completion Activities

Vehicle Class	Number of trips per well	Percentage of total
16-wheel tractor trailers	88	7.6%
10-wheel trucks	216	18.6%
6-wheel trucks	452	39.0%
Pickup trucks/Passenger Vehicles	404	34.8%
Total	1,160	100.0%

Source: BLM 2006. Note: Trips by different vehicle types are not necessarily distributed evenly during the drilling process and total traffic associated with drilling and completion activities may vary from site to site.

Cumulative Effects: Cumulatively, once development of each well and the production has been completed there would be small increase in traffic due to monitoring or maintenance activities. The McCallum Oil Field locality already has monitoring or maintenance activities occurring throughout the area and the increased traffic would not be substantially noticeable. If the new development areas are restricted to the public, there would be approximately 8.925 additional acres of Public Lands that would no longer be accessible. With past, present and foreseeable future actions to protect for public health and safety from accessing areas of development there would be an incremental increase over time of lands not accessible to the public. As areas that are developed become unproductive and have equipment removed and reclaimed they would become accessible to the public again.

Environmental Consequences of the No Action Alternative:
Direct and Indirect Effects: Under No Action Alternative, the two well sites would not be developed and impacts as discussed in the Proposed Action discussion would not occur.

Cumulative Effects: Under the No Action Alternative there would be no direct cumulative effects. However, by not authorizing this Proposed Action it would likely not reduce potential cumulative effects overtime since there would continue to be other cumulative effects within the general area and within North Park region with the foreseeable future development overtime due to the lands already being leased for oil and gas.

Mitigation: None.

Literature Cited:
BLM 2006. Final Roan Plateau Resource Management Plan Amendment & Environmental Impact Statement, Volume III, Appendix C.

NOISE

Affected Environment: The Proposed Action is within the McCallum Oil Field locality in an area that has moderate to high levels of development. The McCallum Oil Field is located approximately 5 miles northeast of Walden, Colorado. The project area, while rural, currently has noise impacts associated with traffic from trucks and equipment associated with oil and gas development including maintenance, monitoring and development activities. Noise is generally described as any unwanted sound, which are vibrations that travel through the air or another medium and can be heard when they reach a person's or animal's ear. Noise can be weighted and noise intensity (or loudness) is measured as sound pressure in decibels (dBAs). The decibel scale is logarithmic, not linear, because the range of sound that can be detected by the human ear is so great that it is convenient to compress the scale to encompass all the sounds that need to be measured. Each 20-unit increase in the decibel scale increases the sound loudness by a factor of 10. Sound levels have been calculated for areas that exhibit typical land uses and population densities. In rural recreational areas, ambient sound levels are expected to be approximately 30 to 40 dBA (USEPA 1974, Harris 1991). As a basis for comparison, the noise level during normal conversation of two people 5 feet apart is 60 dBA.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Action to drill two new wells, improve access roads and construct new road would result in increased levels of noise during the construction, drilling, and completion phases. The noise would be most noticeable along the roads used to haul equipment and at the pad location. The proposed activities are subject to noise abatement procedures as defined in the COGCC Rules and Regulations (Aesthetic & Noise Control Regulations). Operations involving pipeline or gas facility installation or maintenance, compressors, the use of a drilling rig, completion rig, workover rig, or stimulation are subject to the maximum permissible noise levels for industrial zones. The 2006 revised COGCC noise control rules call for noise levels from oil and gas operations at any well site and/or gas facility to comply with the maximum permissible levels (Table 4) at a distance of 350 feet.

Table 4. Noise Standards for Light industrial, Residential/Agriculture/Rural		
Zone	7:00 A.M. to 7:00 P.M	7:00 P.M. to 7:00 A.M
Light Industrial	70 dBA	65 dBA
Residential/Agricultural/Rural	55 dBA	50 dBA

Given the locations of the Proposed Action within the McCallum Oil Field and no residential or occupied structure within close vicinity of the proposed well locations the light industrial standard is applicable. The allowable noise level for periodic impulsive or shrill noises is reduced by 5 dBA from the levels shown (COGCC 2008). Short-term increases in noise levels would occur on roads and highways accessing the project areas, primarily during the construction, drilling and completion phases. Based on the Inverse Square Law of Noise Propagation (Harris 1991) and an typical noise level for construction sites of 65 dBA at 500 feet (Table 5), project-related noise levels would be approximately 59 dBA at a distance of 1,000 feet, approximating active commercial areas (USEPA 1974).

Table 5. Noise Levels at Typical Construction Sites and along Access Roads			
Equipment	Noise Level (dBA)		
	50 feet	500 feet	1,000 feet
Air Compressor, Concrete Pump	82	62	56
Backhoe	85	65	63
Bulldozer	89	69	63
Crane	88	68	62
Front End Loader	83	63	57
Heavy Truck	88	68	62
Motor Grader	85	65	59
Road Scraper	87	67	61
Tractor, Vibrator/Roller	80	60	54
Sources: BLM (1999a), La Plata County (2002)			

Noise impacts would heavily decrease once equipment would move offsite from the project areas. However, during the production phase background noise levels would remain that would

be noticeable if a person was adjacent to the development. Noise levels would increase temporarily onsite and on access routes when vehicles enter for monitoring and maintenance activities. If additional equipment is required other than pickup/passenger vehicles the increase in noise levels would be commensurate with those identified in Table 2, however likely would short term in time.

Cumulative Effects: Cumulatively, once development of each well and the production has been completed there would be additional small short term increases in noise associated with traffic due to monitoring or maintenance activities throughout the area. Once in production phase there would be additional background noise attributed with each site. Due to the existing level of development around proposed well NMU 11-12, cumulatively, background noise would be greater in the general area but less noticeable to the casual observer. Proposed well SMU 22-6H is in a less developed area, cumulatively, would not be as great in the general area but may be more noticeable to the casual observer. The McCallum Oil Field locality already has monitoring or maintenance activities occurring throughout the area and the increased traffic would not substantially increase cumulative noise from traffic in the McCallum Oil Field.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under No Action Alternative, the two well sites would not be developed and impacts as discussed in the Proposed Action discussion would not occur.

Cumulative Effects: Under No Action Alternative, the two well sites would not be developed and cumulative effects would not occur.

Mitigation: None.

Literature Cited:

1999a. Oil & Gas Leasing & Development – Final Supplemental Environmental Impact Statement. Glenwood Spring Field Office, Colorado.

Colorado Oil and Gas Commission (COGCC). 2008. Amended Rules. 800 Series Aesthetic and Noise Control Regulations Regulation 801. http://cogcc.state.co.us/

La Plata County, Colorado. 2002. Final La Plata County impact report. October.

U.S. Environmental Protection Agency (EPA). 1974. Information on noise levels identified as requisite to protect public health and welfare with an adequate margin of safety. EPA-550/9-74-004, Arlington, VA.

TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED: No comments were received from the tribes (see attachment for Native American tribe list). The proposed project was listed on the Kremmling Field Office internet NEPA register and NEPA public room board. No comments were received from the public.

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility	Date Signed
Paula Belcher	Hydrologist	Air Quality; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Soils; Wetland and Riparian Zones; NEPA Review	08/06/2014
Bill B. Wyatt	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontological Resources	8/8/2014
Neilie Goodwin	Rangeland Management Specialist	Vegetation; Rangeland Management	07/23/2014
Darren Long	Wildlife Biologist	Migratory Birds; Special Status Animal Species; Terrestrial and Aquatic Wildlife; Areas of Critical Environmental Concern; Special Status Plant Species	7/31/2014
Kelly Elliott	Natural Resource Specialist	Hazardous or Solid Wastes; Geology and Minerals; Visual Resources	07/17/2014
John Monkouski	Outdoor Recreation Planner	Wilderness; Visual Resources; Access and Transportation; Recreation,	08/06/2014
Kenneth Belcher	Forester	Forest Management	08/08/2014
Zach Hughes	Natural Resource Specialist	Invasive species; Vegetation	08/04/2014
Annie Sperandio	Realty Specialist	Lands and Realty	7/21/2014
Kelly Elliott	Natural Resource Specialist	Project Lead – Document Preparer	08/07/2014
Susan Valente	Planning & Environmental Coordinator	NEPA Coordination	08/12/2014

ATTACHMENTS:

1. CONDITIONS OF APPROVAL FOR APPLICATIONS FOR PERMIT TO DRILL
2. SEED MIX
3. TRIBAL CONSULTATION LIST

U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office,
P O Box 68
Kremmling, CO 80459

Finding of No Significant Impact (FONSI)

DOI-BLM-CON02000-2014-0032-EA

BACKGROUND

Bonanza Creek Energy Operating Company LLC (Bonanza) proposes to drill two new horizontal oil/gas wells in Jackson County, Colorado in August 2014. The proposed well locations would be as follows;

- **NMU 11-12H** well would be on BLM-administered surface and mineral estate, located in the existing North McCallum Unit in T. 9 N., R. 79 W., Sec. 11 NWNE.

- **SMU 22-6H** well would be on BLM-administered surface and mineral estate, located in the existing South McCallum Unit in T. 9 N., R. 78 W., Sec. 22 SWSW. Approximately 15' of new access road would be constructed in association with the well.

FINDING OF NO SIGNFICANT IMPACT

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action is not a major federal action and will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the Kremmling Resource Management Plan (RMP), Record of Decision (ROD) December 19, 1984; Updated February 1999. Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

Context

Bonanza will develop oil and gas resources on federal minerals Lease COD-028963, Unit COC-47650X and on COC-7979 (SHL), COC15260 (BHL), Unit COC-47689A consistent with federal lease rights provided for in the Mineral Leasing Act of 1920, as amended. The projects are site-specific actions located on BLM administered surface and BLM administered federal minerals that do not in and of itself have international, national, regional, or state-wide importance.

Intensity

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

1. **Impacts that may be both beneficial and adverse.**

Activities for production and the drilling and completion of the new wells would result in noise and human presence that could potentially affect certain resources in the project areas. These effects could include the disruption of wildlife, the dispersal of noxious and invasive weed species, and dust effects from unpaved road traffic. However, the Proposed Action helps minimize soil disturbances by using existing roads to the maximum extent possible. The economic health of the county and the State would improve with additional development in the area if the wells are producers.

2. **The degree to which the Proposed Action affects public health or safety.**

   In complying with the CARPP, BLM will annually review the emissions and pollutants and work with CDPHE and EPA to determine if adaptive management strategies are needed. Construction would create some fugitive dust but the project proponent plans on using water to control emissions when necessary. The small amount of dust and its short duration would not impact air quality in the area. Hazardous wastes should not be a concern, but if a spill does occur, the proponent would be responsible for immediate remediation. There would likely be no impact to public health and safety.

3. **Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.**

   There are no cultural resources, park lands, prime farmlands, wetland, wild and scenic rivers or ecologically critical areas within the project areas.

4. **Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.**

   The federal action of issuing permits to drill for oil and gas resources has been routinely analyzed in site-specific EAs as well as at the EIS level during land use planning. No public comments have been received to indicate the possible effects of the Proposed Action would be controversial.

5. **Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.**

   No highly uncertain or unknown risks to the human environment were identified during analysis of the Proposed Action. Risk of harm to human health or the environment would be substantially reduced if the design features and COAs are properly implemented and/or adhered to.

6. **Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.**

The Proposed Action does not establish a precedent for future BLM actions with significant effects or represents a decision in principle about a future consideration. The federal action of issuing permits to drill for oil and gas resources has been routinely analyzed in site-specific EAs and discussed in the 1984 Kremmling ROD/RMP.

7. **Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.**

   This action is not related to other actions with individually insignificant but cumulatively significant impacts.

8. **The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.**

   There are no known cultural resources that would be affected by the Proposed Action. Standard cultural conditions of approval would be applied to minimize risk to any previously undiscovered resources.

9. **The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.**

   There are no endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

10. **Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.**

    Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

SIGNATURE OF AUTHORIZED OFFICIAL: /s/ Stephanie Odell
Field Manager

DATE SIGNED: 8/12/2014

U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office,
P O Box 68
Kremmling, CO 80459

DECISION RECORD

PROJECT NAME: Bonanza Creek Energy Application for Permit to Drill (APD) NMU 11-12H & SMU 22-6H

ENVIRONMENTAL ASSESSMENT NUMBER: DOI-BLM-LLCON02000-2014-0032-EA

DECISION

It is my decision to implement the Proposed Action, as described in the attached EA: DOI-BLM-CO-2014-0032-EA. This decision is contingent on meeting all mitigation measures and monitoring requirements listed below.

Mitigation Measures:
The proponent (Bonanza) will comply with the ESA and the PRRIP by either becoming a member of SPWRAP or by applying to the JCWCD to use a portion of the District's industrial water allocated in the interstate decree.

COMPLIANCE WITH LAWS & CONFORMANCE WITH THE LAND USE PLAN

This decision is in compliance with the Federal Land Management and Policy Act, the Endangered Species Act, and the National Historic Preservation Act. It is also in conformance with the December 19, 1984; Updated February 1999 Kremmling Resource Management Plan (RMP).

ENVIRONMENTAL ANALYSIS AND FINDING OF NO SIGNIFICANT IMPACT

The Proposed Action was analyzed in DOI-BLM-LLCON02000-2014-0032-EA and it was found to have no significant impacts, thus an EIS is not required.

PUBLIC INVOLVEMENT

RATIONALE

The Federal mineral estate administered by the Bureau of Land Management (BLM) as part of its mineral leasing program provides minerals, including fossil fuels, for the benefit and use of the American public and encourages development of domestic oil and gas reserves to reduce dependence on foreign energy supplies. Analysis of the Proposed Action has concluded that there are no significant negative impacts and that it meets Colorado Standards for Public Land Health.

ADMINISTRATIVE REMEDIES

Administrative remedies may be available to those who believe they will be adversely affected by this decision. Appeals may be made to the Office of Hearings and Appeals, Office of the Secretary, U.S. Department of Interior, Board of Land Appeals (Board) in strict compliance with the regulations in 43 CFR Part 4. Notices of appeal must be filed in this office within 30 days after publication of this decision. If a notice of appeal does not include a statement of reasons, such statement must be filed with this office and the Board within 30 days after the notice of appeal is filed. The notice of appeal and any statement of reasons, written arguments, or briefs must also be served upon the Regional Solicitor, Rocky Mountain Region, U.S. Department of Interior, 755 Parfet Street, Suite 151, Lakewood, CO 80215.

SIGNATURE OF AUTHORIZED OFFICIAL: /s/ Stephanie Odell
Field Manager

DATE SIGNED: 8/12/2014

Attachment #1

CONDITIONS OF APPROVAL FOR APPLICATIONS FOR PERMIT TO DRILL (APDs)

Operator: Bonanza Creek Energy Operating Company LLC (Bonanza).

The Bureau of Land Management, Kremmling Field Office, address and telephone contacts are:

Address:	1116 Park Av., Kremmling, CO, 80459
Office Phone:	(970) 724-3000 Fax: (970) 724-3066
Natural Resource Specialist:	Kelly Elliott, Office Phone (970) 724-3015

The Bureau of Land Management, Little Snake Field Office, address and telephone contacts are:

Address:	455 Emerson Street. Craig, CO, 81625
Office Phone:	(970) 826-5000 Fax: (970) 826-5022
Petroleum Engineer:	Bob Hartman, Office Phone (970) 244-3041
Assistant Field Manager	Tim Wilson Office Phone (970) 826-5099

All lease and/or unit operations are to be conducted in such a manner to ensure full compliance with the applicable laws, regulations (43 CFR Part 3160), Onshore Oil and Gas Orders No. 1, 2, 3, 4, 5, 6 and 7, Notice to Lessees, and the approved plan of operations. Approval of this application does not relieve you of your responsibility to obtain other required federal, state, or local permits. A copy of the approved Form 3160-3 and the pertinent drilling plan, along with any advisory narratives and conditions of approval, shall be available at the drillsite to authorized representatives at all times. The operator is considered fully responsible for the actions of his subcontractors.

Your review and appeal rights are contained in 43 CFR 3165.3 and 3165.4.

STANDARD CONDITIONS

1. The Kremmling Field Office and the Little Snake Field Office (970) 826-5000 will be given 48-hour notification prior to commencing construction and/or reclamation work.

2. Notify Little Snake Field Office at (970) 826-5000 at least **48-**hours in advance to witness running and cementing of surface casing and testing of the BOPE.

3. The notice of spud will be reported orally to the Little Snake Field Office at (970) 826-5000 at least **48-**hours after spudding. This notice shall include spud date, time, details of spud (hole, casing, cement, etc.), API well number, and date the rotary rig was moved on location. If the spudding occurs on a weekend or holiday, wait until the following regular workday to make this report. The oral notice shall be followed by written notification within 5 working days.

4. No hazardous materials, hazardous wastes, or trash will be disposed of on public lands or on private surface overlying the oil and gas lease. If a release does occur, it will be reported to the Kremmling Field Office immediately at (970) 724-3000.

5. The wellsite disturbance area will be brush cleared and topsoil salvaged before any excavation or fill commences.

6. All survey stakes representing the leveled drill pad, the crest of excavations, the toe of embankments, the reserve pit, and the access road will be in place prior to construction. Staking shall include the well location, two 200-foot directional reference stakes, the exterior dimensions of the drill pad, reserve pit and other areas of surface disturbance, cuts and fills, and centerline flagging of new roads with road flagging being visible from

one to the next.

7. Construction activities will not be allowed to commence if the topsoil cannot be separated from the subsoil during adverse environmental conditions (i.e. when soils are frozen or muddy).

8. Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance.

9. Drainage for runoff water will be provided to divert runoff water away from the reserve pit, cut and fill portions of the well location and the topsoil stockpile. Runoff water that concentrates and forms rills on the well location will be diverted and/or dispersed to prevent erosion of the fill slopes. Any ditches designed to provide runoff drainage will be constructed on a minimal grade and will release water onto undisturbed ground without causing accelerated erosion. The operator will take additional measures if erosion is occurring within the runoff water drainage system.

10. If fossils are discovered during construction or other operations, all activity in the area will cease and the Field Office Manager will be notified immediately. An assessment of significance will be made within an agreed timeframe. Operations will resume only upon written notification by the Authorized Officer.

STANDARD STIPULATIONS

11. If cultural or paleontological resources are discovered during exploration operations under this license, the licensee shall immediately notify the Field Officer Manager and shall not disturb such discovered resources until the Field Officer Manager issues specific instructions.

    a. Within 5 working days after notification, the Field Office Manager shall evaluate any cultural resources discovered and shall determine whether any action may be required to protect or to preserve such discoveries.

    b. The cost of data recovery for cultural resources discovered during exploration operations shall be borne by the licensee, if the licensee is ordered to take any protective measures. Ownership of cultural resources discovered shall be determined in accordance with applicable law.

    c. The operator is responsible for informing all persons who are associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the operator is to immediately stop activities in the immediate vicinity of the find and immediately contact the Authorized Officer at (970) 724-3000. Within five working days the Authorized Officer will inform the operator as to:

        1. Whether the materials appear eligible for the National Register of Historic Places;

        2. The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again and,

    d. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the Authorized Officer will assume responsibility for whatever recordation, and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The Authorized Officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the Authorized Officer that the required mitigation has been completed, the operator will then be allowed to resume construction.

    e. Pursuant to 43 CFR 10.4(g) (Federal Register Notice: Monday December 4, 1995, Vol 60, No. 232) the holder of this authorization must notify the Authorized Officer, by telephone (970) 724- 3000, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity

of the discovery and protect it for 30 days or until notified to proceed by the Authorized Officer.

12. The reserve pit will be designed to exclude runoff water and maintain a 2-foot freeboard between the maximum fluid level and the lowest point of containment. The reserve pit will not be used for disposal of any materials or fluids, except for materials or fluids specifically addressed in the drilling program or having a subsurface origin. If oil or oily substance is in the reserve pit, it must be removed within 30 days after the drilling rig is removed. Netting will be installed if oily substance is present in the reserve pit.

13. The perimeter of the reserve pit and production pits, if any, will be fenced with woven wire with 2 strands of barbed wire, properly spaced, on the top and all held in place by side posts and corner H-braces to inhibit entry by livestock and wildlife. The fence will be maintained until backfilling or removal of facilities occurs.

14. In the event downhole operations threaten to exceed the required 2-foot freeboard, regarding reserve pit fluids, immediate notification will be provided to the Authorized Officer with concurrent steps taken to minimize the introduction of additional fluids, until alternative containment methods can be approved.

15. Reserve pit fluids will be allowed to evaporate through one entire summer season (May-September) after drilling is completed, unless an alternative method of disposal is approved. After the fluids evaporate, the reserve pit mud will be allowed to dry sufficiently to allow backfilling. The backfilling of the reserve pit will be completed within 30 days after dry conditions exist and will meet the following minimum requirements:

    a. Backfilling will be done in such a manner that the mud and associated solids will be confined to the pit and not squeezed out and incorporated in the surface materials.
    b. There will be a minimum of 5 feet of cover, or return to approximate original contour on the pit.
    c. When the work is completed, the pit areas will support the weight of heavy equipment without sinking and over time shall not subside over 6-inch depth.

16. If installed, production facilities will be located on cut portions of the existing drill pad.

17. In the event production is established, all land surfaces that are to remain free of vegetation (roads and well location) will be monitored for and protected from wind erosion; dry powdery soil will be treated to minimize wind erosion.

18. Prior approval is required to remove reserve pit fluids from the reserve pit; a request of this type will need to include the destination of the fluids and if the destination is not a State approved facility, the request will include State approval of the destination. Fluids may be moved to another reserve pit within the same field with verbal approval of the authorized officer.

19. All pits, cellars, rat holes and other bore holes unnecessary for further lease operations, excluding the reserve pit, will be backfilled immediately after the drilling rig is released. Pits, cellars and/or bore holes that remain on location must be fenced as specified for the reserve pit in the applicant's Surface Use Plan.

20. In the event a producing well is established, all new production equipment which has open-vent exhaust systems will be constructed in such a way to prevent the entry and perching of birds and bats.

21. All permanent structures (on-site for six months or longer) constructed or installed (including oil well pumpjacks) will be painted a flat, non-reflective, earthtone color to match the standard environmental colors, as determined by the Rocky Mountain Five-State Interagency Committee. All facilities will be painted within six months of installation. Facilities required to comply with OSHA (Occupational Safety and Health Act) will be excluded.

22. Surface facilities should appear to blend in to the existing landscape to the greatest possible extent. Facilities should not be located on ridgelines or extend above them. Facilities should be minimal in size (or located underground) and colored and texture to blend in with the surroundings.

23. A containment berm must be installed around all storage tanks, including temporary tanks. Compaction and

construction of the berm surrounding the tank or tank battery will be designed to prevent lateral movement of fluids through the utilized materials, prior to storage of fluids. The berm must be constructed to contain at minimum 110 percent of the storage capacity of the largest tank within the berm. All loading lines will be placed inside the berm.

24. Control of noxious weeds will be required through successful vegetation establishment and/or herbicide application. It is the responsibility of the lease operator to insure compliance with all local, state, and federal laws and regulations, as well as labeling directions specific to the use of any given herbicide.

RECLAMATION PERFORMANCE STANDARDS

25. The lessee is required to use the reclamation practices necessary to reclaim all disturbed areas. Reclamation will ensure surface and subsurface stability, growth of a self-regenerating permanent vegetative cover and compatibility with post land use. The vegetation will be diverse and of the same seasonal growth as adjoining vegetation. Post land use will be determined by the Authorized Officer but normally will be the same as adjoining uses.

    Reclamation practices which must be applied or accomplished are: re-grading to the approximate original contour, effectively controlling noxious weeds, separating, storing and protecting topsoil for redistribution during final abandonment, seeding and controlling erosion. If topsoil is not present, or quantities are insufficient to achieve reclamation goals, a suitable plant growth media will be separated, stored and protected for later use. Reclamation will begin with the salvaging of topsoil and continue until the required standards are met. Topsoil that is stored for 1 year or longer will be seeded with naturally occurring species to retain topsoil vigor. If use of the disturbed area is for a short time (less than one year), practices which ensure stability will be used as necessary during the project, and reclamation, with the exception of vegetative establishment, will be completed within one year. If use of the area is for greater than one year, interim reclamation is required on the unused areas. Interim reclamation of the unused areas will begin immediately upon completion of the permanent facility(s).

    For both short and long term projects vegetative establishment will be monitored annually. If the desired vegetation is not established by the end of the second growing season, practices necessary for establishment will be implemented prior to the beginning of the next growing season. Interim reclamation, unless otherwise approved, will require meeting the same standards as final abandonment with the exception of original contour.

    Annual reports consisting of reclamation practices completed and the effectiveness of the reclamation will be provided to the Kremmling Field Office. The first report will be due in January following initiation of reclamation practices and annually thereafter until final abandonment is approved.

    There are numerous reclamation practices and techniques that increase the success rate of reclamation and stabilization. With the exception of those stated above, it is the lessee's prerogative to use those they choose to accomplish the objective. Additional site specific mitigations may be specified and required. However, it is recommended that state-of-the-art reclamation, stabilization, and management practices be used to achieve the desired objective in a timely and cost-effective manner.

    The following definitions and measurements will be used to accomplish and determine if reclamation has been achieved:

    Permanent vegetative cover will be accomplished if the basal cover of perennial species, adapted to the area, is at lease ninety (90) percent of the basal cover of the undisturbed vegetation of adjoining land or the potential basal cover as defined in adjacent undisturbed areas.

    Diversity will be accomplished if at least two (2) perennial genera and three (3) perennial species that are adapted to the area make up the basal cover of the reclaimed area in precipitation zones thirteen (13) inches or less. One species will not make up more than fifty (50) percent of the perennial vegetation by basal cover.

Self-regeneration and adaptation to the area will be evident if the plant community is in good vigor, there is evidence of successful reproduction, and the species are those commonly found in the area.

Surface stability will be accomplished if soil movement as measured by deposits around obstacles, depths of truncated areas, and height of pedestalling, is not greater than three tenths (0.3) of an inch and if erosion channels (rills, gullies, etc.) are less than one (1) inch in depth and at intervals greater than ten (10) feet.

If this standard is not met by the end of the second growing season, two alternatives exist depending on the severity of the erosion:

If erosion were greater than two (2) times the allowable amount, corrective action would have to be taken by the responsible company at that time;

If erosion is less than or equal to two (2) times the allowable amount, and it is determined the erosion occurred during vegetative establishment and the site may become stable, no corrective action would be required at that time. Another measurement would be performed a year later to determine if stability standards had been met. If the original measurements have not increased by more than the allowed standard, the standard would be considered met. However, if the increase were greater than the allowed standard, corrective action would be required.

Subsurface stability (mass wasting event) is of concern if disturbance has included excavation over four (4) feet in depth and greater than 10,000 square feet in area on slopes thirty five (35) percent and greater, or on any erosion-prone slope. When these conditions occur, length of liability for reclamation and final abandonment will continue for ten (10) years following re-contouring to original contour or for such time that climatic patterns provide two (2) consecutive years in which measurable precipitation totals at least 120 percent of average from October 1 through September 30, as measured by data averaged from nearby regional weather stations. The Authorized Officer may waive this stipulation, or portions of it. Such waiver will be documented and justified when not applicable, or when objectives are accomplished through another method.

SITE SPECIFIC CONDITIONS

- If the Surface Use Plan, submitted to the Kremmling Field Office as part of the applications, is altered, the authorized officer must be contacted.

- **TERRESTRIAL WILDLIFE**
    - Conditions of Approval: Timing Limitation: Dec. 1- March 15 for winter big game

- **SPECIAL STATUS SPECIES**
    - Conditions of Approval: Timing Limitation: Dec. 16- March 15 for crucial sage grouse winter habitat
    - Timing Limitation: March 15-June 30th for breeding and summer sage grouse.
    - Timing limitation: Well site visitation between 9 am – 4pm during lekking season of March 1-May 15.
    - Voluntary mitigation **ratio of 3:1** (3 acres restoration for every 1 acre of disturbance) for habitat restoration for each activity. This comes as a best management practice request for offsetting impacts to priority sage grouse habitat by providing a net loss of cumulative fragmentation over time. These mitigation credits will be recorded and produced in annual invoices/reports for both the operating company and the U.S. Fish and Wildlife Service to reflect these improvements for sage grouse conservation efforts. Industry companies are encouraged to work closely with the BLM and Colorado Parks and Wildlife biologists to coordinate these efforts in priority areas. These areas will have an agreed upon desired condition and be monitored by the BLM to ensure success of application.

- **MIGRATORY BIRDS**

- Condition of Approval: 1) No pad or rig construction or erection activities during May 15-June 15 to avoid take of migratory birds during the primary nesting season. 2) Any secondary containment system would be covered in a manner to prevent access by migratory birds. The operator would construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment and cap any open non-production piping to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, and in-line units.

REGULATORY REMINDERS

A. This permit is valid for a period of one year from the date of approval. Any requests for extensions must be submitted prior to the end of the one-year period. If the permit terminates, any surface disturbance created under the permit must be rehabilitated in accordance with the approved plan within 90 days of termination, unless otherwise approved by the Authorized Officer. An expired permit may be reinstated at the Authorized Officer's discretion; however, future operations may require a new application be filed for approval.

B. All drilling operations, unless otherwise specifically approved in the APD, must be conducted in accordance with Onshore Oil and Gas Order No. 2; Drilling Operations.

C. All 7-Day Requirement responses are made part of this APD.

D. There shall be no deviation from the proposed drilling and/or workover program as approved, without prior approval from the Kremmling and Little Snake Field Offices. Safe drilling and operating practices must be observed.

E. Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease, which would entitle the applicant to conduct operations thereon.

F. No location will be constructed or moved, no well will be plugged, and no drilling or workover equipment will be removed from a well to be placed in a suspended status without prior approval of the Kremmling and Little Snake Field Offices. If operations are to be suspended for more than 30 days, prior approval for certain well operations must be obtained and notification given before resumption of operations in accordance with 43 CFR 3162.3-2 and 3162.3-4.

G. In the case of newly drilled dry holes or failures, and in emergency situations, oral approval for subsurface abandonment operations may be granted by the Little Snake Field Office. Oral approvals must be confirmed in writing (Notice of Intention to Abandon (Form 3160-5)) within 15 days. Unless the plugging is to take place immediately upon receipt of oral approval, the appropriate resource area must be notified at least 48 hours in advance of the plugging of the well, in order to provide a representative the opportunity to witness plugging operations.

H. Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) must be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with Onshore Oil and Gas Order No. 1. Daily drilling reports, a copy of all logs, core descriptions, core analyses, well-test data, geologic summaries, sample descriptions, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations (with Form 3160-4) will be filed and sent to the Little Snake Field Office, 455 Emerson Street, Craig, Colorado 81625. Samples (cuttings, fluid, and/or gas) will be submitted only when requested by the Authorized Officer.

I. Section 102 (b) (3) of the Federal Oil and Gas Royalty Management Act of 1982, as implemented by the applicable provisions of the operating regulations at Title 43 CFR 3162.4-1 (c), requires that "not later than the fifth business day after any well begins production on which royalty is due anywhere on a least site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than 90 days,

the operator shall notify the authorized officer by letter or sundry notice, Form 3160-5, or orally to be followed by a letter or sundry notice, or the date on which such production has begun or resumed."

The date on which a well commences production, or resumes production after having been off production for more than 90 days is to be construed as follows:

1. For an oil well, the date on which liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank or the date on which liquid hydrocarbons are first produced into a permanent storage facility, whichever occurs first;

2. For a gas well, that date on which gas is first measured through sales metering facilities or the date on which associated liquid hydrocarbons are first sold or shipped from a temporary storage facility, whichever occurs first. For purposes of this provision, a gas well shall not be considered to have been off production unless it is incapable of production.

If you fail to comply with this requirement in the manner and time allowed, you shall be liable for a civil penalty of up to $10,000 per violation for each day such violation continues, not to exceed a maximum of 20 days. See Section 109(c) (3) of the Federal Oil and Gas Royalty Management Act of 1982 and the implementing regulations at Title 43 CFR 3163.2(e) (2).

J. This APD is approved subject to the requirement that, should the well be successful (completed for production or recompleted for production in a new interval), the Little Snake Field Office must be notified when it is placed in a producing status. Such notification may be provided orally if confirmed in writing, and must be received in the Little Snake Field Office by not later than the 5th business day following the date on which the well is placed on production. The notification shall provide, as a minimum, the following information items:

1. Operator name
2. Well name, number, and location
3. Date well was placed on production
4. The lease, or communitized tract, or unit participating area to which the well's production is attributable.

K. A separate Monthly Report of Operations, Form 3160-6, shall be submitted for each lease, unit participating area, or communitization agreement, beginning with the month in which drilling operation commence, in accordance with 43 CFR 3162.4-3. This report shall be sent to Minerals Management Service, Production Accounting Division, P.O. Box 17110, Denver, Colorado 80217.

L. If at any time the facilities located on public lands authorized by the terms of the lease are no longer included in the lease (due to contraction in the unit or other lease or unit boundary change) the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental or other financial obligation determined by the Authorized Officer.

M. All produced liquids must be contained, including the dehydrator vent/condensate line effluent. All production pits must be bermed and fenced.

N. Gas produced from this well may not be vented or flared beyond an initial, authorized test period of 30 days or 50 MMCF following completion, whichever comes first, without the prior written approval of the authorized officer. Should gas be vented of flared without approval beyond the authorized test period, you may be directed to shut the well in until the gas can be captured or approval to continue venting or flaring is granted and you may be required to compensated the lessor for that portion of the gas that was vented or flared without approval which is determined to have been avoidably lost.

O. Produced water from newly completed wells may be temporarily disposed of into the reserve pit for a period of up to 90 days. During the 90-day periods, an application for approval of a permanent disposal method and location will be submitted according to Onshore Order No. 7 for approval.

P. A schematic facilities diagram as required by CFR 43, Part 3162.7-5, shall be submitted to the Little Snake Field Office within 60 days of installation or first production, whichever occurs first. All site security regulations as specified in Onshore Order No. 3 shall be adhered to. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed in accordance with 3162.7-5(b).

Q. The permit holder is required to use certified weed free hay, straw and mulch on BLM lands in Colorado should the use or storage of hay, straw or mulch be necessary. Any person who knowingly and willfully violates this regulation may be subject to a fine of not more than $1,000 or imprisonment of not more than 12 months, or both as defined in 43 USC 1733(a).

Attachment #2 Seed Mix

Drill Seeding Rate

SEED NAME	Application Rate PLS/Acre	Seeds/SQ. FT.
Grasses		
Western wheatgrass Pascopyrum smithii, variety. Arriba	2.97	7.5
Thickspike Wheatgrass Elymus lanceolatus var. Critana	2.13	7.5
Bluebunch wheatgrass Pseudoroegneria spicata, var. Secar (Alternate var. Goldar)	2.51	7.5
Sheep fescue Festuca ovina, var. Covar	.62	7.5
Totall	8.23	30
Forbs		
Alfalfa var. Ladak	.73	3.5
Big sagebrush Artemesia tridentata ssp. wyomingensis	.06	3.5
Total	.79	7

* Big sagebrush and Alfalfa may be seeded when it would be better for success
* Broadcast seeds at twice the rate

(Seed tags must be submitted to BLM after seeding.)

*** do not seed prior to October 1, to avoid sprouting.**

MULCH

Native Hay or Straw 2,000 lbs. X acres =

-Mulch is optional but it will help reclamation results.
-Must be Certified Noxious Weed Free

Attachment 3

NATIVE AMERICAN TRIBES CONTACTED:

Colorado Commissioner of Indian Affairs
Attn: Ernest House Jr., Exec. Sec.
130 State Capitol
Denver, Colorado 80203

Richard Brannen Sr., No. Arapaho Business Council
Northern Arapaho Business Council
P O Box 396
Fort Washakie, Wyoming 82514

Robert Goggles, NAGPRA Rep.
Northern Arapaho Business Council
328 17 Mile Road
Arapaho, Wyoming 82510

Jo Ann White, THPO Director
Northern Arapaho Tribe
P O Box 396
Fort Washakie, Wyoming 82514

Mr. Norman Tidzump, Hist. Preserv. Officer
Shoshone Tribe
P O Box 1008
Fort Washakie, Wyoming 82514

Ivan Posey, Shoshone Business Council
Shoshone Tribe
P O Box 538
Fort Washakie, Wyoming 82514

Clement Frost, Chairman
Southern Ute Indian Tribe
P O Box 737
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Neil Cloud, NAGPRA Rep.
Southern Ute Indian Tribe
Box 737, Mail Stop #73
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Curtis Cesspooch, Chairman
Uintah & Ouray Tribal Business Center
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